

OUTSOURCING DESKTOP SERVICES

INPUT

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**U.S. Outsourcing Information Systems
Program**
(SOSOP)

Outsourcing Desktop Services

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Abstract

Outsourcing Desktop Services analyzes the emerging market for desktop services in the U.S. User buying and decision-making behaviors are studied in depth. The report points out how vendors are responding to the changing needs for services in this market.

The desktop services market is expected to grow to \$4.4 billion by 1997 at a CAGR of 31%. The high growth rate is stimulated by the downsizing trend that is currently sweeping its way across U.S. industry. Current technological diversity and future technological innovations over the next few years will prove the desktop services market to be one of the best opportunities for vendor services since the early 1980s.

Outsourcing Desktop Services guides users on how to purchase desktop services from vendors and offers strategic marketing advice to vendors that want a stronghold in this market.

This report contains 96 pages and 52 exhibits and was prepared as part of INPUT's Outsourcing Information Systems Program.



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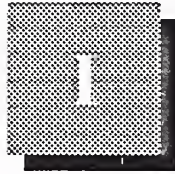
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Introduction

The downsizing trend to a client/server architecture at the desktop level is driving U.S. companies to seek vendor participation in managing and developing their desktop operations. A critical component of desktop outsourcing is the installation and management of the local-area networks (LANs) and wide-area networks (WANs) required to operate a desktop environment. Outsourcing at the desktop level is becoming a necessity for users as the sheer numbers of devices, types of hardware and software, connectivity issues, and end-user requirements become too staggering for internal IS departments to manage.

Outsourcing desktop operations offers many potential benefits to users. IS departments are freed from the daily operational problems that usually require immediate attention. Internal staffing problems are eliminated. Significant cost savings are usually achieved while improving the quality of services to the user's organization. Vendors have many more resources available to them through their internal organizations and alliances with other vendors to respond to specific user needs, sometimes on an as-needed basis.

The strong market growth at the desktop level offers alternative markets for vendors as many traditional lines of business are experiencing little or no growth. Many vendors are restructuring internally to provide the service levels that outsourcing customers require. Other vendors are busy structuring mergers, acquisitions, and partnerships that will allow them to compete strategically in a diverse market.

INPUT expects the desktop market to grow vigorously over the next several years and beyond as business re-engineering principles gain acceptance and user demands intensify in this market.

A

Purpose and Scope

The purpose of *Outsourcing Desktop Services* is to analyze the emerging market for outsourcing of desktop services in the U.S.

The report is structured to allow some comparisons to INPUT's *Outsourcing Desktop Services, Europe, 1992-1997* companion report.

A market forecast, vendor presence, types of service providers, and support options are presented in detail. Profitability ratios and sales strategies of vendors are covered.

The report focuses on why user organizations buy desktop services, how they evaluate vendors, and the critical success factors in the relationship with the vendor.

User respondents were selected by random sampling of INPUT data bases. Users with unknown intentions toward outsourcing and companies known to have existing outsourcing relationships were interviewed.

A wide variety of vendor types were specifically targeted by INPUT to give a broad perspective on the market.

The federal market was specifically downplayed for this study because of its unique rules and regulations governing the contracting process.

B

Methodology

Telephone interviews and a direct mail campaign were aimed at CIOs and network managers of user organizations. Vendors were also interviewed by telephone. Their companies are known as outsourcing and/or desktop vendors.

C

Report Organization

This report consists of the following additional chapters:

- Chapter II presents an executive overview highlighting the contents of the report.
- Chapter III—The Opportunity for Desktop Services—discusses the market forecast, target buyers, and specific strategic assessments of the marketplace. It identifies critical success factors for vendors in this market. The chapter concludes with how vendors supply services as prime or subcontractors.
- Chapter IV—User Purchasing of Desktop Services—is an analysis of user behavior in the desktop outsourcing decision process.
- Chapter V—Recommendations—offers marketing recommendations to vendors and suggests vendor management tactics to users.

D

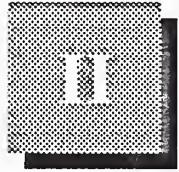
Related Reports

For additional insight into the desktop services and systems operations market, readers are encouraged to consult the following published INPUT reports:

Systems Operations—Growth for the 1990s (1989)
Systems Operations—Management Issues and Practices (1990)
Network Operations Management (1990)
Systems Operations Market Analysis, 1990-1995 (1991)
Systems Operations: Vendor Analysis (1991)
Systems Operations Buyer Issues and Alternatives (1991)
Systems Management Priorities and Directions (1991)
Systems Operations Market Analysis, 1991-1996 (1991)
Methods of Approaching IS Outsourcing (1992)
Outsourcing Network Management Operations (1992)
Information Systems Outsourcing Opportunities, 1992-1997 (1992)

In addition, INPUT regularly issues outsourcing research bulletins highlighting various aspects of the outsourcing market throughout the year.

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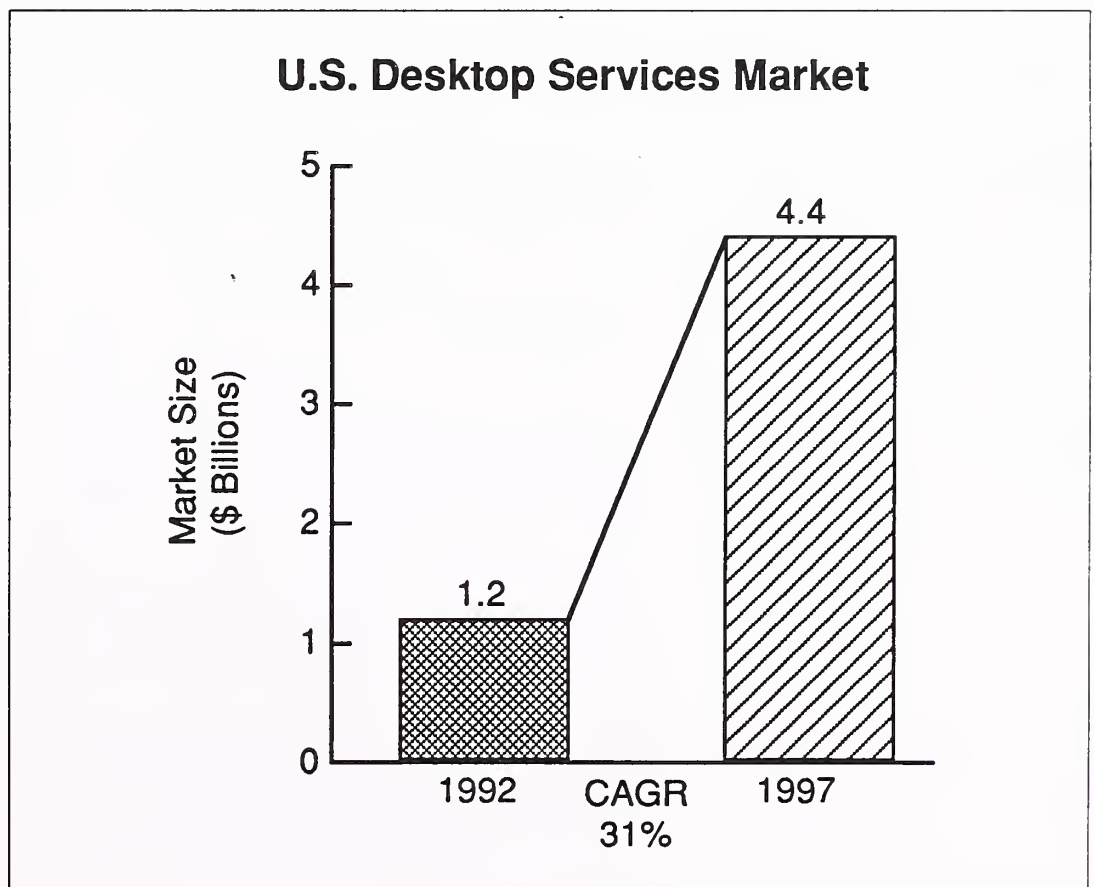
Executive Overview

A

Desktop Services—A New Direction for the 1990s

Overall the market for outsourcing information systems operations is vigorous and healthy. It is primarily driven by an expansion in the desktop services component of the market. As shown in Exhibit II-1, INPUT expects desktop services requirements to grow at a 31% CAGR to \$4.4 billion by 1997.

EXHIBIT II-1



The intricacies of managing an inventory of PCs and workstations, hardware and software, maintaining standards among diverse user groups, and meeting the challenges that LAN and WAN connectivity entail are numerous and complex. Corporate and IT management are deciding to leave these operational concerns to outside professionals. Corporate resources can then be redirected to core business strategies.

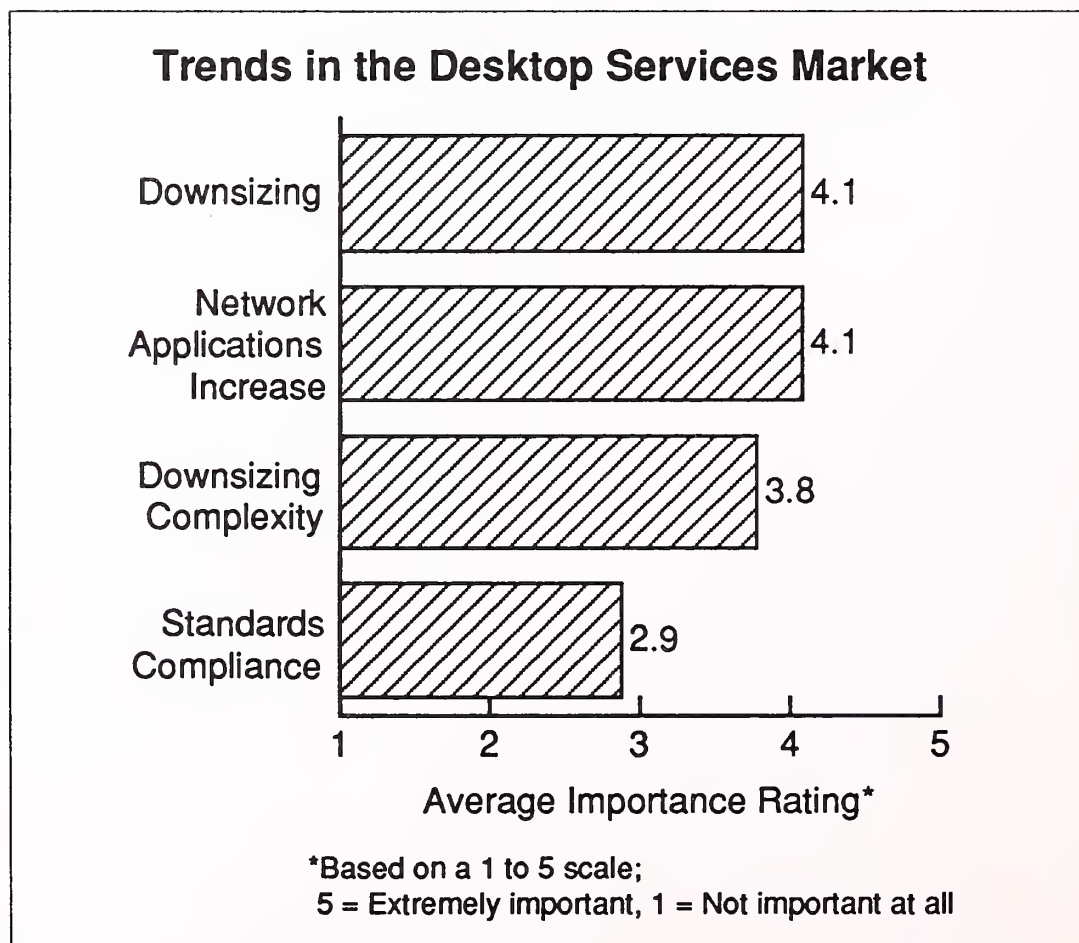
Outsourcing of desktop functions and other IS functions is a natural outgrowth of business process re-engineering. It is more efficient and usually less costly to move operational responsibility to those best qualified to perform IS functions.

B

Downsizing Spurs Market Growth for Desktop Services

The criticality of effectively operating the desktop environment is becoming more acute as mission-critical applications increasingly move off mainframe platforms. User demands for quick problem solving and training continue to mount as information systems operations downsize to client/server platforms. As Exhibit II-2 demonstrates, downsizing and its related components are viewed as stronger trends in the growing market for desktop services than the need for standards compliance within organizations.

EXHIBIT II-2

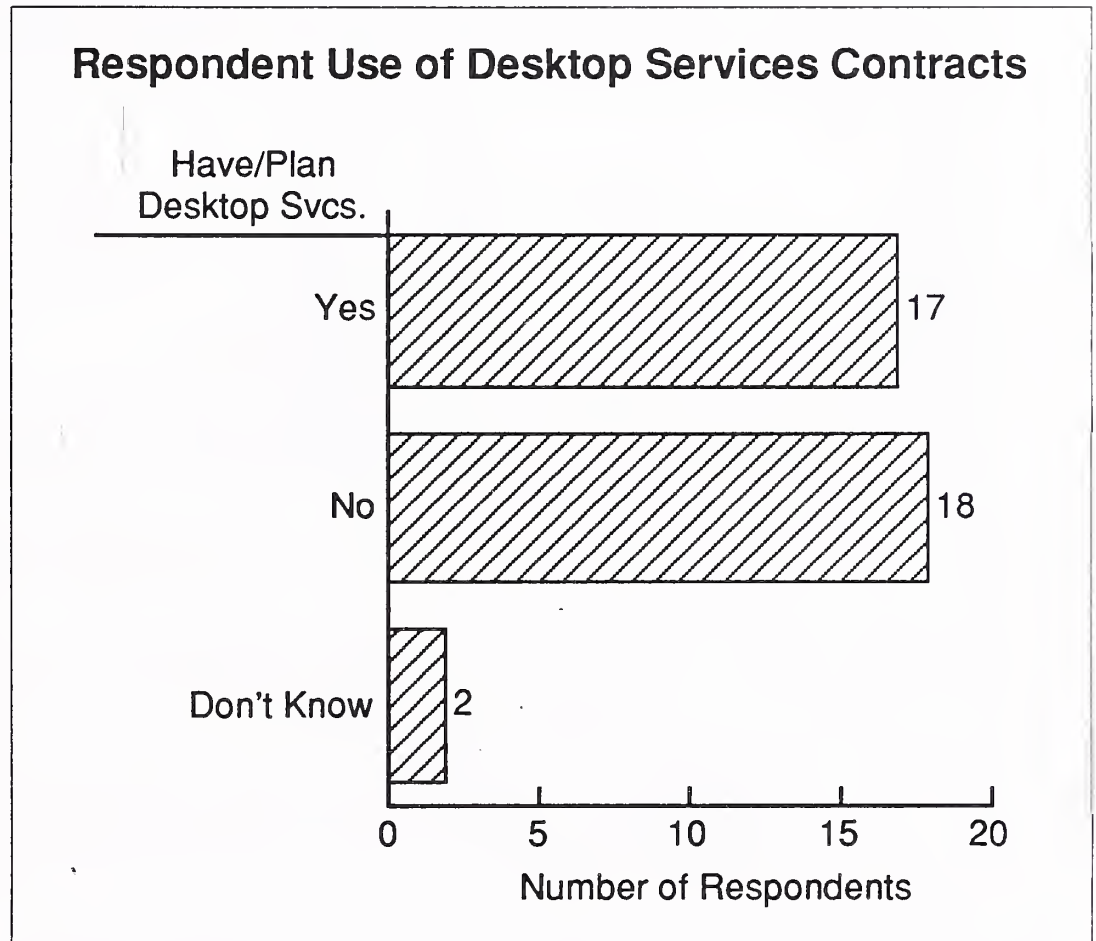


C

More Users Are Buying Desktop Services

INPUT's study of 37 U.S. companies reveals that almost half currently have or intend to use desktop services providers, as shown in Exhibit II-3.

EXHIBIT II-3



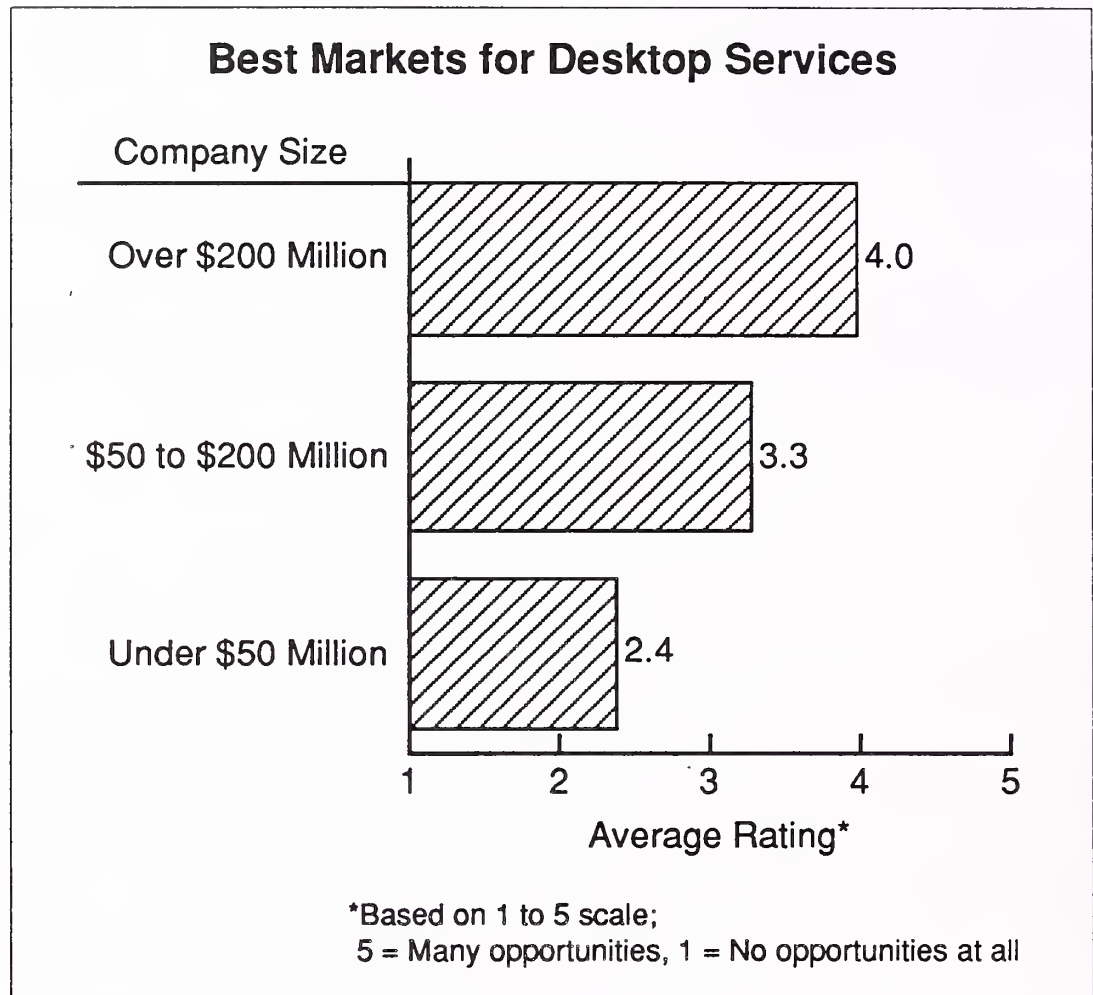
Two users said that although their companies do not currently have plans to outsource desktop functions, they hope to be in a position to do so in the next two to three years. Although INPUT's sample size is small, it was conducted randomly. INPUT believes the data show a strong trend emerging within U.S. industry.

D

Companies Over \$200 Million in Revenues Are the Best Bets for Desktop Services

Vendors see most contract opportunities for desktop services occurring at large companies with revenues of over \$200 million, as shown in Exhibit II-4.

EXHIBIT II-4



Companies in this category, specifically the *Fortune 1000*, are usually geographically dispersed and are in the process of downsizing operations, if they have not already done so. They are “ripe” targets for vendors’ marketing efforts.

When asked to name the strongest vertical markets for their companies, three-quarters of the vendors did not do so. They say opportunities are based more on company size. Those vertical markets that were mentioned by vendors are limited to the manufacturing and insurance industries.

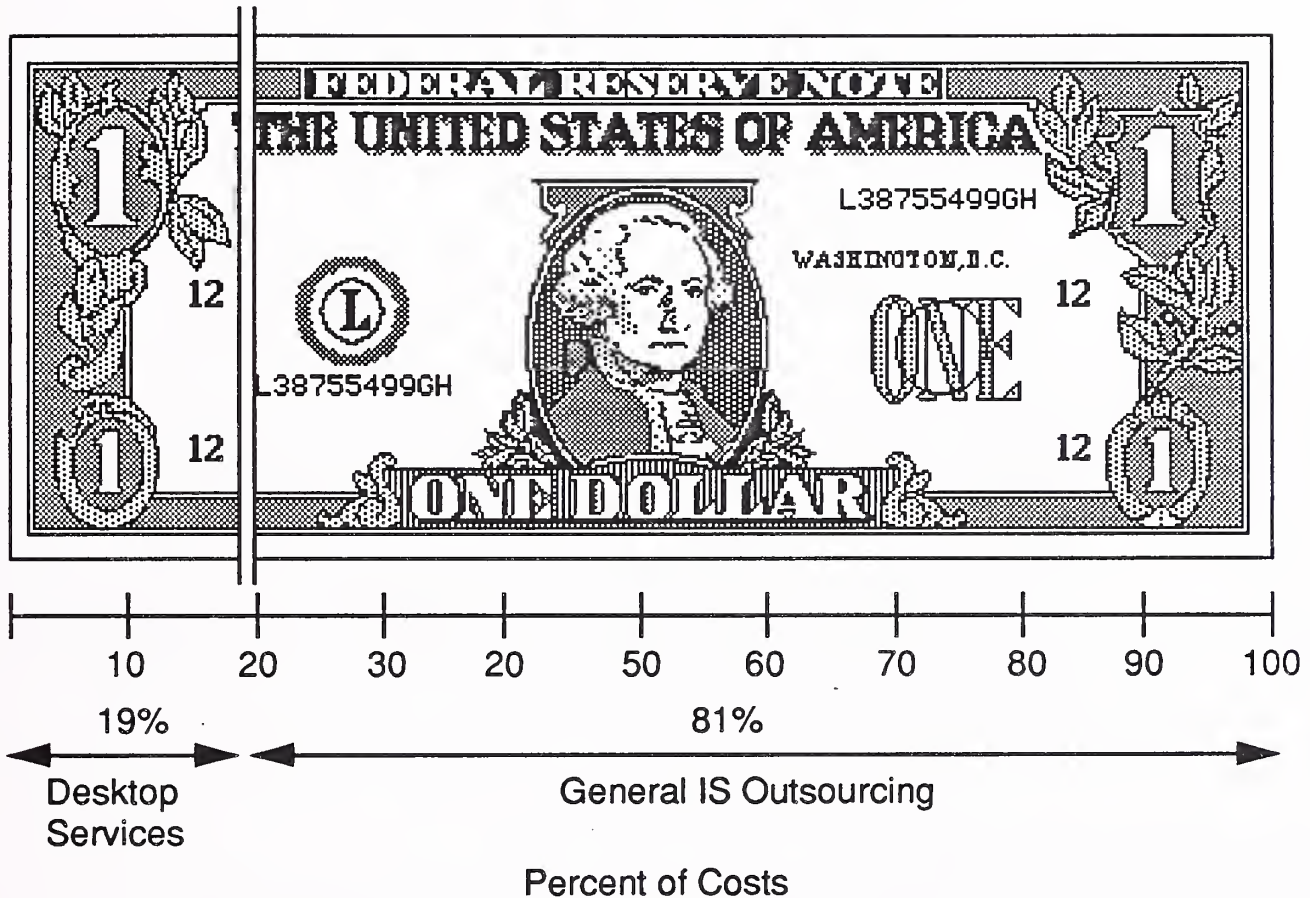
E

Desktop Services Costs Are 20% of Overall IS Outsourcing

Companies that outsource their desktop operations as part of overall IS outsourcing contracts claim the desktop portion accounts for approximately 20% of the contract expenditures. (See Exhibit II-5.)

EXHIBIT II-5

Desktop Services Cost Component of General Outsourcing Contracts



INPUT expected the desktop component to be as high as 40-50%. The lower figure given by respondents suggests vendors are cutting desktop prices to win larger contracts.

F

Keeping the Strategic/Competitive Edge Is a Key Reason Not to Purchase Desktop Services

Earlier INPUT studies have shown the main reason companies do not outsource IS functions is because a vendor fails to promise significant cost savings. As shown in Exhibit II-6, cost is also the chief reason companies do not outsource at the desktop level.

EXHIBIT II-6

Reasons for Not Outsourcing Desktop Services

Reason	Rank*
Cost	1
Control/competitive advantage	2
Excellent internal staff	3
Security	4

*Rank based on frequency of mention by respondents.

However, in this study several companies felt they could potentially damage their core business by relinquishing control of the desktop to a vendor. These companies rely on the desktop to service their customers and believe they would lose their competitive edge if a vendor provided these services. Vendors are also not perceived as innovators of applications development at this level. Relinquishing control of development efforts for mission-critical functions running in desktop environments is not endorsed by many companies that are already outsourcing more routine mainframe processing functions.

G

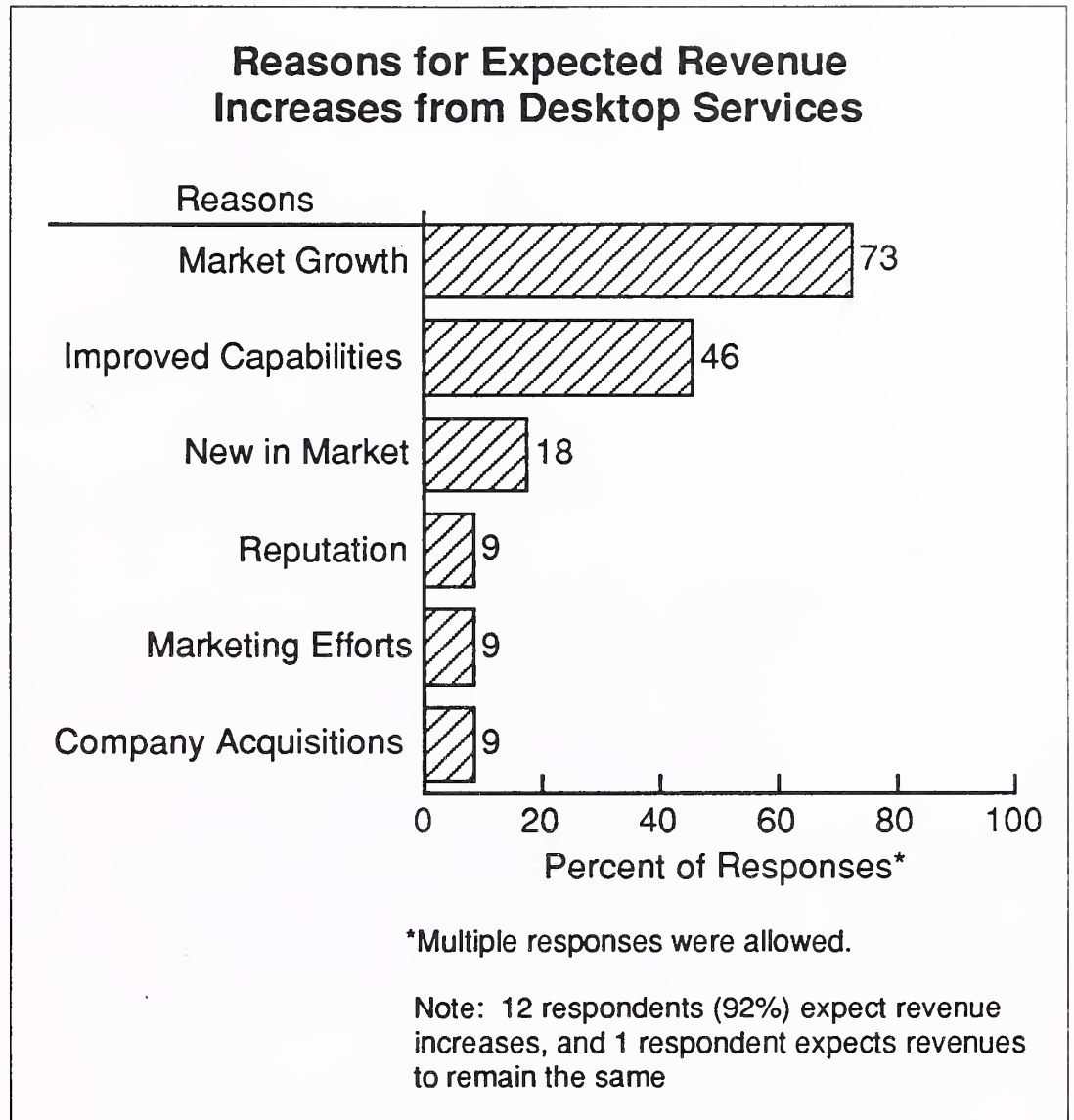
Is Market Growth Decreasing Despite Expected Increases in Revenue?

As Exhibit II-7 shows, most vendor companies interviewed expect their desktop services revenue to increase over the next five years.

These increases are expected largely because of the expanding market for desktop services. The PC market continues to explode as larger capacity machines come down in price and users increasingly run mission-critical applications in desktop environments. Downsizing is also forcing the integration of the desktop with mainframe operations. Current outsourcing (OS) customers and prospects are finding they must now add desktop services to their outsourcing wish lists.

A couple of outsourcing vendors that primarily service the desktop market are not expecting market growth. These vendors believe corporate America would rather patch their PC/desktop systems. It is less expensive than supporting desktop operations to the extent that mainframe operations are maintained.

EXHIBIT II-7



H

Traditional Industry Descriptors No Longer Apply to Vendor Classifications

Vendor respondents were asked to classify what vendor type best describes their companies. Over half (57%) of the respondents expressed difficulty using the traditional company descriptors of professional services firms, systems integrator, hardware vendor, PC distributor, and third-party maintenance supplier. The terms they used to describe their companies are listed in Exhibit II-8.

EXHIBIT II-8

New Vendor Classifications**Provider Types**

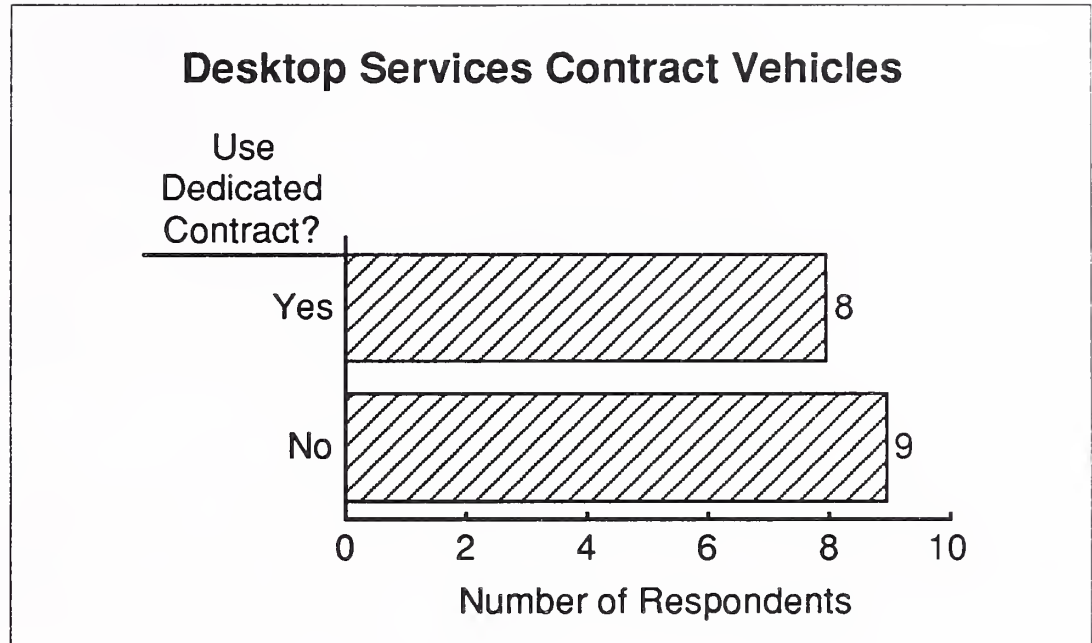
- Full service
- Systems and services
- Systems and solutions
- Network systems integrator
- Outsourcing vendor

The new terms reflect a shift from the traditional lines of business of many companies. Traditional hardware vendors are changing the markets they pursue. They are de-emphasizing their hardware and placing more emphasis on delivering a solution to meet customers' needs. Vendors are becoming more independent and seeking versatility in the products they can support. Vendors recognize that to be successful in today's IS market, a vendor must be able to support multiple platform needs. Most U.S. companies operate in a hodgepodge computer environment, especially at the desktop level. Users prefer to rely on as few vendors possible, or just one to provide information systems services.

I**One-Stop Shopping Does Not Predominate**

Based on the users of desktop services in this study, market opportunities in the desktop area exist in fairly equal shares through dedicated and non-dedicated contracts. As shown in Exhibit II-9, equal numbers of respondents have separate desktop services contracts as have combined desktop functions into a broader-spectrum outsourcing contract. Those vendors desiring to increase market presence in the desktop area should not limit themselves to pursuing one type of opportunity over another.

EXHIBIT II-9

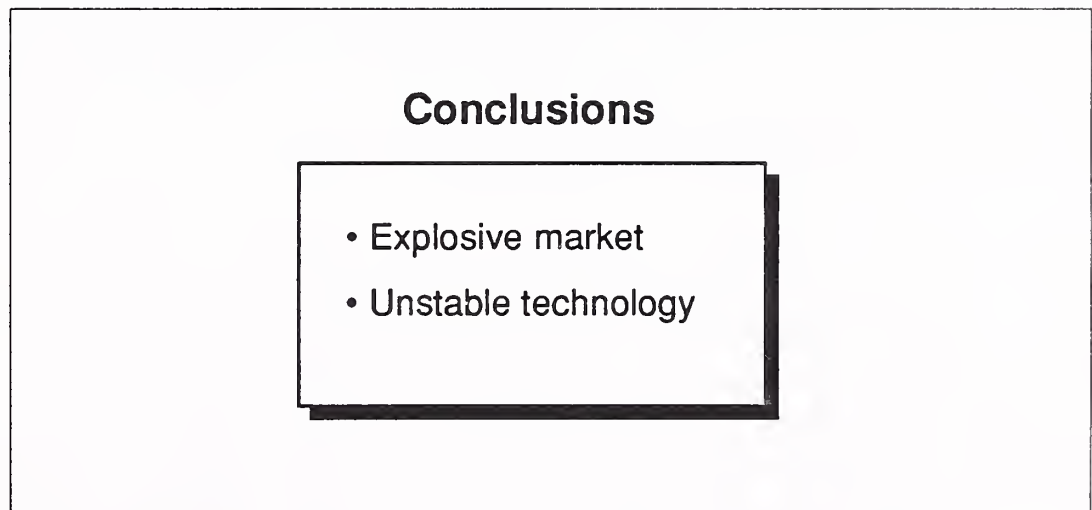


J

Conclusions

Two observations summarize the market for desktop services in the U.S., as depicted in Exhibit II-10.

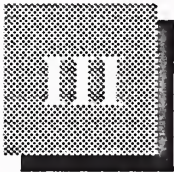
EXHIBIT II-10



Desktop services is an exploding market for vendors. Unlimited opportunities are evolving as companies downsize their IS operations to the desktop level. Although at this time desktop services is not as profitable as other IS products and services proved to be in the 1970s and early 1980s, it is one of the few high-growth areas remaining in the IS industry. Vendors that want to continue to be profitable and maintain market shares should cultivate this segment of the outsourcing market. Users are facing increasingly complex desktop environments. This trend is expected to

continue as downsizing continues and new hardware and software products also flood the market. Emerging standards are still in the infancy stage, and few products are available today that would ease the complexity of managing and connecting the diverse desktop environment. Users should leave the headaches and the “driving” of their desktop operating environments to the current experts, vendors, at least until technology stabilizes somewhat after the year 2000.

Specific recommendations for both vendors and users are discussed in depth in Chapter V, Recommendations.



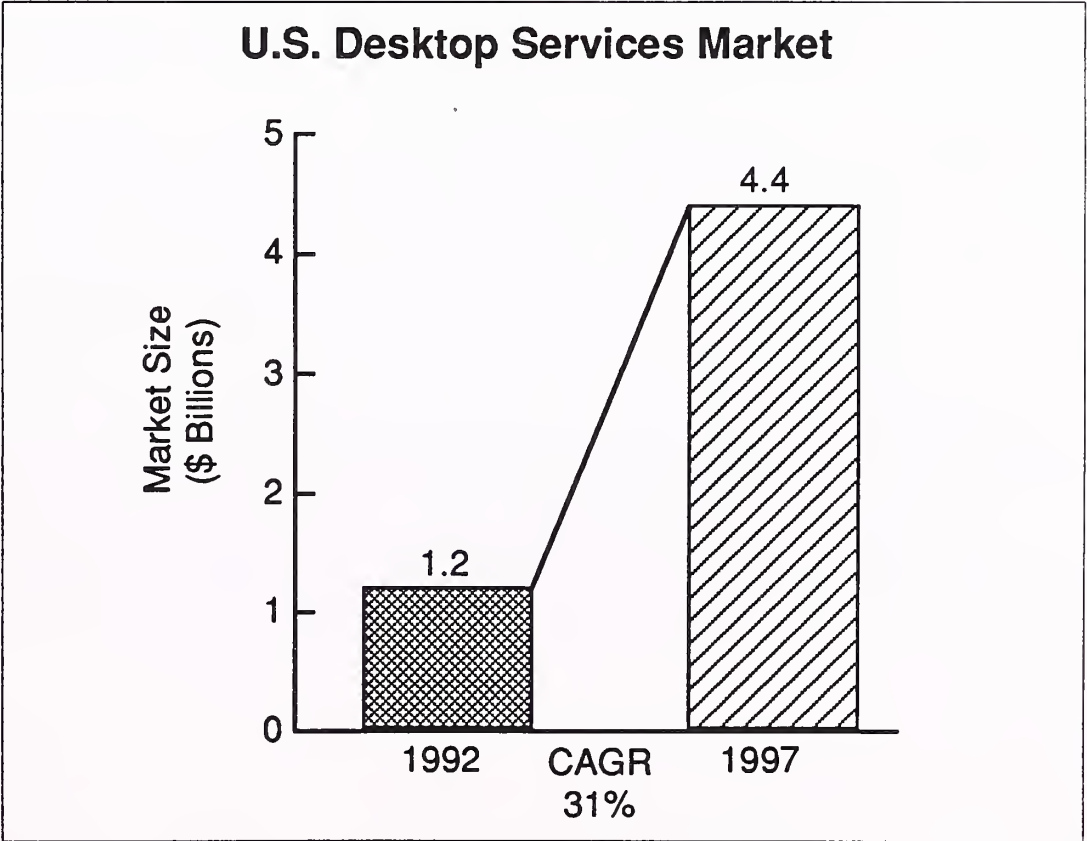
The Opportunity for Desktop Services

This chapter presents a detailed discussion of the forecast and the best target companies for the desktop services portion of the outsourcing market. Specific strategic assessments of the marketplace offer insight to vendors and users alike.

A Outsourcing of Desktop Services to Grow

INPUT presents the growth of the desktop services market in Exhibit III-1. The market is expected to grow from \$1.2 billion in 1992 to \$4.4 billion in 1997 at a compound annual growth rate (CAGR) of 31%. The pattern is clear. More and more companies and government agencies are turning over the responsibilities for the deployment, maintenance, and connectivity of PCs and workstations to vendors.

EXHIBIT III-1



U.S. companies find it especially challenging to internally maintain the technical expertise necessary to manage a diverse suite of PCs and workstations in today's growing client/server environment. The desktop is becoming the operational IS workhorse in downsized environments.

In addition, LAN/WAN connectivity and administration issues are compounded. Standards need to be developed and maintained. Backup procedures must be adhered to as the use of mission-critical applications proliferate in the downsized environment. Users require the resolution of their operating problems immediately. Training for new systems and employees is an ongoing requirement at most companies.

The market is also expanding because more companies are outsourcing platform and applications operations and network management functions. Customers are adding the responsibilities for desktop services to existing and potential contracts. Corporate America is showing a preference for channeling their energies, resources, and assets into their principal lines of business.

Outsourcing of desktop functions and other IS functions is a natural outgrowth of business process re-engineering. It is more efficient and usually less costly to move operational responsibility to those best qualified to perform IS functions.

B

Manufacturing Companies Are Good Markets for Desktop Services

To predict definitive markets among vertical industries is somewhat premature, considering that the desktop services market is in its infancy. However, the company affiliations of user respondents in this study indicate that the manufacturing industry offers the most prospects for vendors at this time. Examination of Exhibit III-2 shows that almost 20% of the total sample (includes nondesktop or outsourcing users), and 41% of those that outsource desktop functions, are discrete and process manufacturing companies. Large manufacturing entities are often geographically dispersed and PCs are widely used in many locations.

Manufacturing companies are natural markets for desktop services vendors. Companies with revenues over \$200 million are viewed by vendors as the principal market for desktop services. Often these companies are large manufacturing entities that prefer to concentrate their business acumen on their core business activities and leave information systems functions in the hands of vendors.

EXHIBIT III-2

Industry Affiliations of User Respondents by Outsourced Functions

Type	OS Desktop & Other IS	OS Other IS Only	OS Desktop Only	No OS	Total
Manufacturing - Discrete - Process	3 1	3 1	2 1	2	10 3
Telecommunications	-	-	1	-	1
Retail	1	1	-	-	2
Banking	1	1	-	2	4
Insurance	1	2	-	2	5
Health Services	1	-	-	-	1
Education	1	-	-	2	3
Government	-	-	-	1	1
Other/Misc.	2	1	2	2	7
Total	11	9	6	11	37

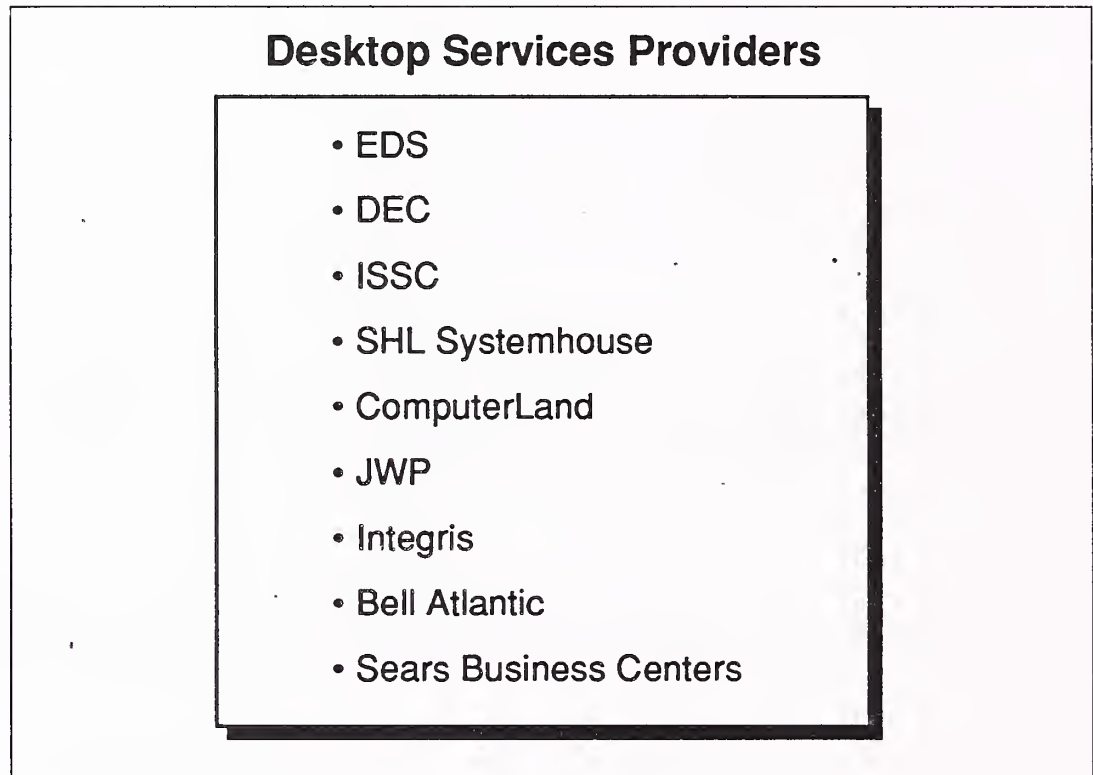
Other businesses that are strong candidates for desktop services include the retail, banking, and insurance industries. The wide geographical dispersion of many of these organizations, combined with large end-user bases, makes it easy for internal IS departments to justify outsourcing desktop services throughout their organizations.

Companies that outsource other IS functions—such as platform operations, applications management, or network operations—are better targets for desktop services contracts than companies that perform these functions internally. Thirty percent of the sample in this study outsource other IS functions in addition to at least one desktop service. Only 13% of the sample had decided to outsource at the desktop level only. Interestingly, 70% of the total sample outsource at least one IS function.

C

Strategic Assessments**1. Professional Service Vendor Dominance Is Challenged in the Desktop Market**

As shown in Exhibit III-3, professional services vendors are not the only type of vendor recognized as successful desktop services vendors.

EXHIBIT III-3

EDS, known now as a systems integrator, has been in the outsourcing business for years. EDS builds business expertise in one area and uses the experience very successfully to grow in another. EDS has the resources and the reputation to remain strong in the desktop market.

DEC built its business in the midsize computer market. The company is now channeling its resources and expertise toward the PC and network management levels.

IBM's IT industry presence was developed selling computers for all platforms, not services. In recent years, IBM has been directing its marketing and technical efforts to the services markets, as evidenced by its systems integration contracts and its ISSC subsidiary for outsourcing services. Providing outsourcing services is a natural evolution for the company that has dominated the mainframe and microcomputer world, either through its own hardware or through vendors of IBM-compatible machines.

Systemhouse, known predominantly for its professional services and systems integration services, is making significant headway in gaining outsourcing and desktop services contracts. The company has reorganized to address the desktop market. Ownership of ComputerLand stores in Canada affords an easy entry into desktop contracts through the PC distributor channel.

ComputerLand, originally a retailing pioneer in the PC market, has emerged as a multivendor desktop services provider. Its recent acquisition of TRW's Customer Service Division solidifies its position as a leading network integrator, nationwide trainer, multivendor technical help desk source, and professional services firm at the desktop level. ComputerLand intends to capitalize on the service and support functions in the downsizing market. The TRW acquisition allows ComputerLand to compete for on-site support contracts at a national level.

JWP's 1991 acquisition of Businessland solidifies JWP's position in the overall outsourcing market as a viable desktop provider, especially for large firms, but its precarious financial position may prevent it from taking advantage of the expanding market.

Integris, known for its contracts in systems integration, is also gaining popularity with desktop buyers.

Bell Atlantic enjoys a strong reputation in the third-party maintenance and support market and is successfully leveraging this into a number of desktop outsourcing contracts.

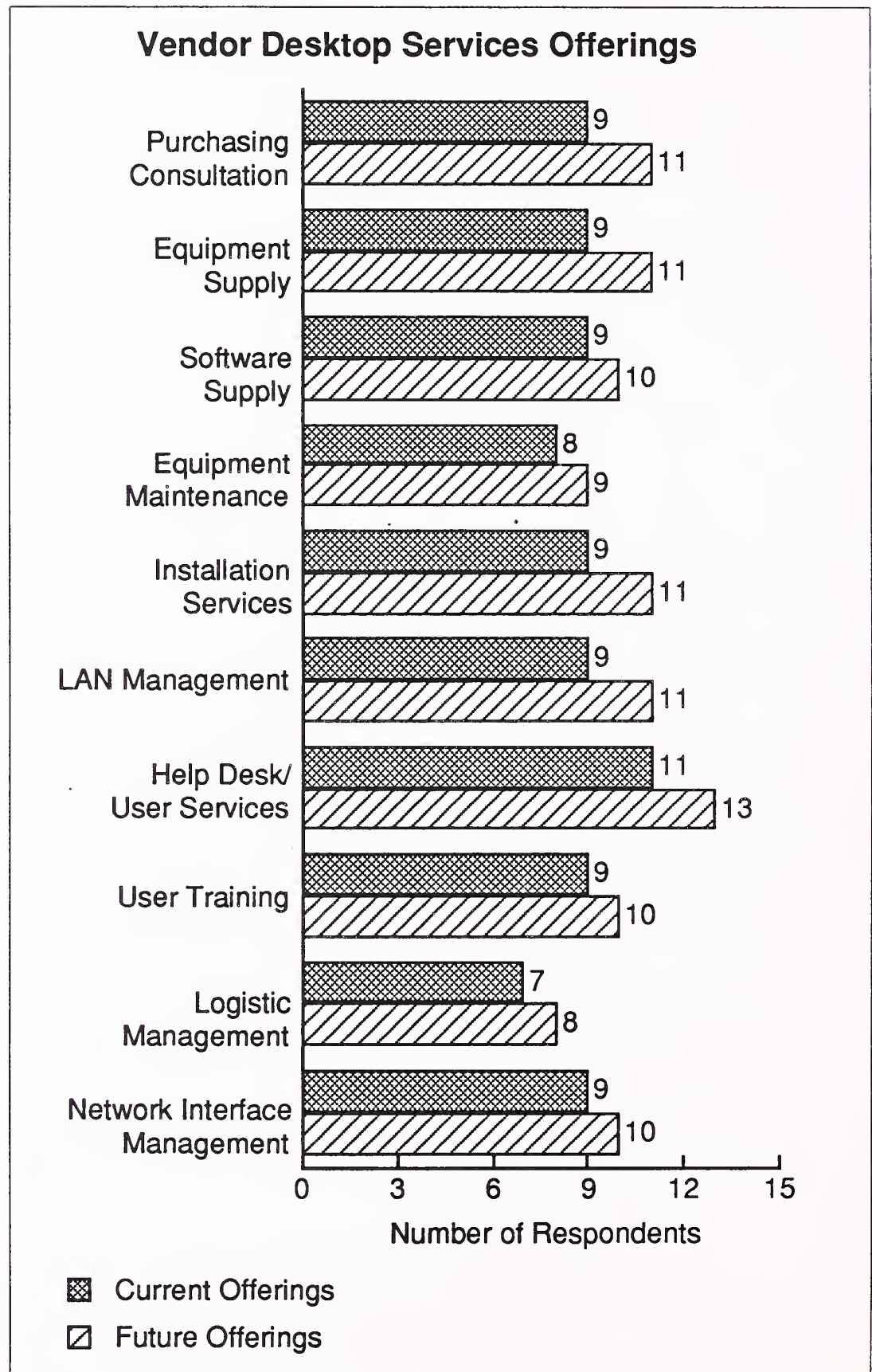
Sears Business Systems Center (SBSC) is viewed as a successful vendor at the desktop level because of its strengths in providing LAN connectivity, installation service and equipment, and software supply. It has been especially active in the federal market to date.

2. Few Vendors to Add New Service Offerings in the Foreseeable Future

Most of the vendors interviewed for this report offer a wide variety of desktop services. Consequently they have little need to expand their service offerings.

Current and future offerings are contrasted in Exhibit III-4. Although each desktop component shows a future increase in the number of respondents offering each service, two respondents are new entrants into the market, and currently do not participate in the desktop market.

EXHIBIT III-4



Only one service is offered by all respondents presently in the desktop market: help desk/user services. This function is the most commonly associated desktop service and is a priority for users to outsource. Most users find that staffing the help desk function is not only costly, but difficult to fill. Managing the help desk function with internal staff is sometimes more demanding than managing a large data center. In today's diverse hardware and software environment, a large amount of technical expertise is required to respond to questions and problems that arise on a daily basis. Many users find this virtually impossible to maintain or do not want to commit sufficient company resources to this effort.

The two vendors currently not providing desktop services intend to enter the market by offering help desk/user functions first.

Although equipment maintenance services are commonly associated with help desk/user services, this function is one of the few that is offered with less frequency by vendors interviewed for this study. Equipment maintenance services historically have been supplied by the manufacturer or distributor of a product. Standalone maintenance contracts have also been a common practice. Up until the past few years most applications were processed on departmental or mainframe-class machines. Standalone PCs were used for administrative functions and did not require connectivity.

In today's client/server architecture, PCs and workstations and their associated LANs and WANs dominate and must be maintained at high availability levels as mission-critical applications run in downsized environments. Although desktop vendors would prefer to stay away from the equipment maintenance business if possible, it will become more apparent that users prefer to contract with one vendor for all services at the desktop level.

Logistics management functions, or inventory control services, is the least offered service of desktop vendors. However, over 50% do offer this function currently. If a vendor is supplying most other desktop functions, users assume the vendor should also track the type of equipment and software that the user is using.

Interestingly, over two-thirds of the vendors offer network interface management services (gateways to mainframes and VANS). INPUT did not expect a large portion of vendors at the desktop level to offer this service. However, considering 83% of the vendors in this study also provide platform operations to their customers, as shown in Exhibit III-5, this finding is not surprising. Management expenses are also rapidly growing for most IS departments.

EXHIBIT III-5

Vendor Type by Outsourcing Services Offered

Services	Number of Respondents			
	Vendor Type			Total
	Prof. Svcs.	SI	Outsourcing	
Platform, applications mgmt., applications maint., network ops.	3	4	1	8
Platform, applications mgmt., network operations	-	-	2	2
Applications mgmt.	1	-	-	1
Network operations	-	-	1	1
Total	4	4	4	12

Two-thirds of the vendors in this study offer outsourcing services in all of INPUT's categories of IS outsourcing. Although a small sample, two trends seem to emerge. A full range of services is offered by vendors that are normally viewed as professional services firms or systems integrators. Vendors that are perceived only as outsourcing vendors are more likely to offer fewer outsourcing capabilities. Companies experienced in a wide array of IS products and services can more easily transfer their expertise into the overall outsourcing market. It is easier for these types of companies to compete for outsourcing contracts because of experience and reputations built in the overall IS marketplace.

Vendors report that an average of 50% of their larger outsourcing contracts contain at least one desktop service component, as shown in Exhibit III-6. INPUT expects the desktop component of general outsourcing engagements to increase as more users depend on professionals to manage critical and complex desktop functions, or because all IS functions are turned over to a vendor.

EXHIBIT III-6

Percent of Larger OS Contracts Including at Least One Desktop Service

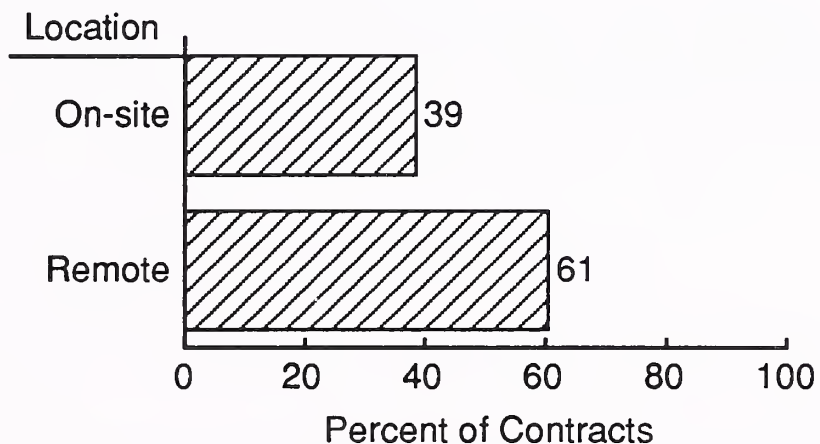
Percent of Contracts Range	Number of Respondents	Percent of Respondents
1-49	5	45
50-99	3	27
100	3	27

Note: Average percent of contracts that include at least one desktop service component is 51.8.

Vendors prefer to provide desktop services from a central remote location because it is more cost effective. However, almost 40% of their contracts require vendors to maintain a support staff at the customer site (see Exhibit III-7). Vendors usually will offer any service to a customer, provided the customer is willing to pay the cost.

EXHIBIT III-7

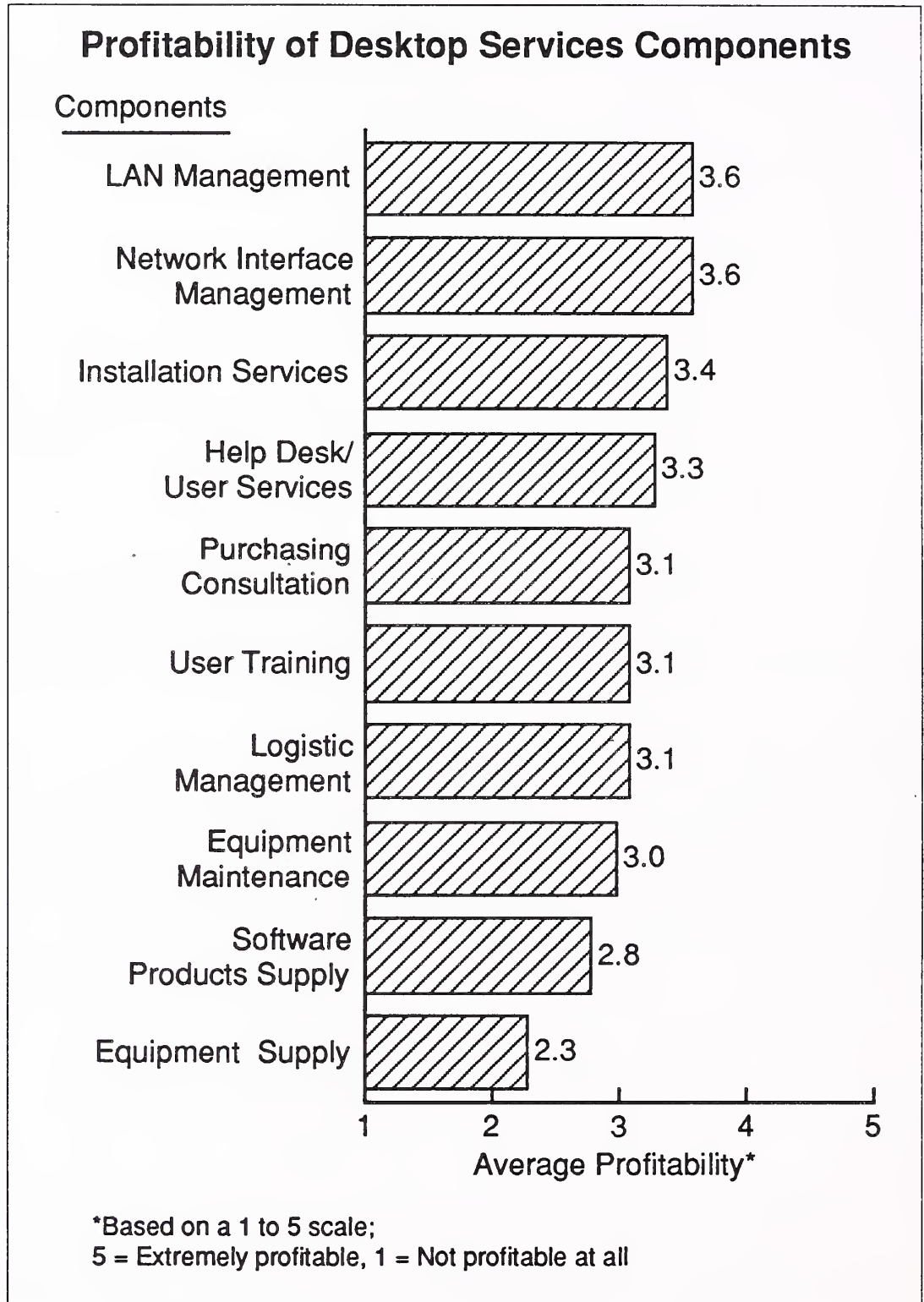
Vendors' Delivery of Desktop Service



3. Networking Services Is the Most Profitable for Vendors

Although the desktop area seems to be exploding in terms of the numbers of opportunities for vendors, the profitability of providing these services is not very high. The average rating of profitability for each desktop service is displayed in Exhibit III-8. None of the services received a score over 3.6 (based on a 1-5 scale, where 5 = extremely profitable).

EXHIBIT III-8



Overall, those services that require more value-added technical expertise are rated higher on the profitability scale than those services that are not dependent on a specific vendor's capability.

Network services at any level—either for LANs or handling the interface to mainframe operations—is most profitable for vendors. No computer is an island anymore. Users are forced to rely on outside vendors to manage connectivity at their sites. LAN installations are usually not straightfor-

ward. They are affected by the types of CPUs and applications used by a company. Custom "troubleshooting" is becoming the norm in downsized environments.

Help desk/user services also receive a higher rating relative to overall profitability ratings given to all functions. The help desk is usually tailored to suit individual company requirements.

Equipment and software supply services are rated the lowest. Especially at the desktop level, products are purchased as commercial-off-the-shelf (COTS) commodities. It is a very cost-competitive market with lower profit margins. A vendor may undercut desktop prices in order to capture large outsourcing contracts.

4. Vendor Revenue from Desktop Services Is Not High

Because a major portion of the vendors in this study also provide other IS outsourcing services, the average percent of revenue derived from desktop services only is 29%. Conversely, those vendors that are only in the desktop outsourcing market receive all their revenue from this market subsegment (see Exhibit III-9).

EXHIBIT III-9

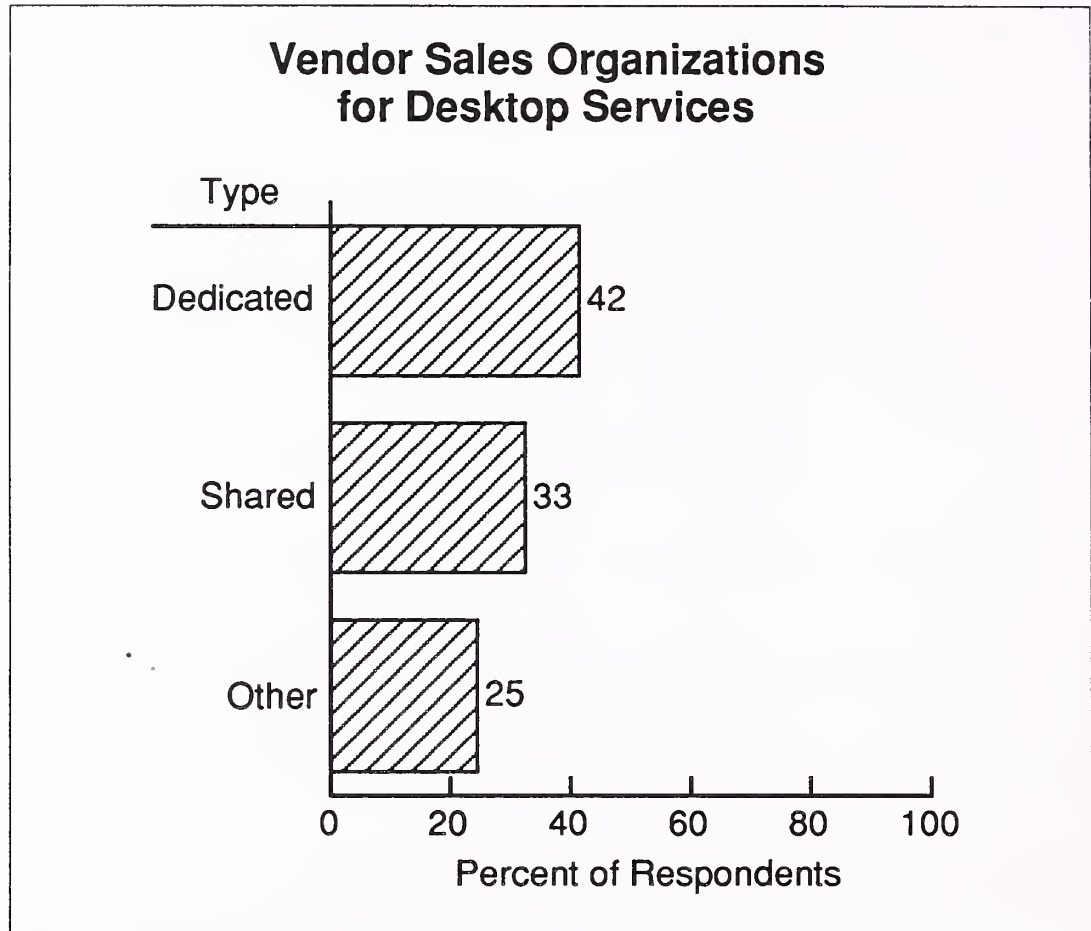
Percent of Revenue from Desktop Services

Percent Range	Number of Respondents	Percent of Respondents
1-10	6	75
90-100	2	25

5. Vendors Promote Desktop Services Through a Variety of Sales Teams

How a vendor is structured to sell other IS services determines how desktop functions are marketed. As shown in Exhibit III-10, only 42% of the vendors in this study have desktop sales organizations dedicated only to these sales. The remaining vendors structure their sales teams by vertical markets (i.e., banking, insurance, manufacturing), geographic location, strategic application expertise, or combined with another service delivery mode (i.e., systems integration, outsourcing in general).

EXHIBIT III-10



As the outsourcing market gains momentum and vendors profit from their experiences and satisfied customers increase in number, INPUT expects vendors will increasingly use outsourcing and desktop services sales specialists for specific industries.

6. Technical Versatility Is the Best Asset for Vendors

The best asset for a vendor to possess in the desktop market is technical versatility. If a vendor does not have wide technical capability to support a variety of customer needs and product knowledge of a variety of manufacturers, their services are severely limited at the desktop level. Companies hire vendors to perform desktop services because they have neither the skill set nor the dedicated resources to perform this function internally.

According to vendors, other strengths are necessary. These are ranked in Exhibit III-11. A vendor's reputation is important to building new outsourcing desktop relationships. Networking knowledge is also critical to ensure performance of the PC/workstation environment. Vendors must appear to have centralized services in the desktop area. Especially for the help desk/user function, a seamless interface should be apparent to the user, even if the vendor is only fielding support calls.

EXHIBIT III-11

Vendor Strengths

Strengths	Rank*
Technical versatility	1
Reputation	2
Network knowledge	3
Centralized services	4
Help desk experience	5

*Rank based on frequency of mention by respondents.

A global or national support structure is critical to winning contracts requiring services at multiple U.S. or international locations.

Customers prefer to work with vendors that understand their business. Vendors respond more quickly to customers when they speak the same "industry language" and find it easier to demonstrate value-added services to their customers.

The number-one weakness of vendors in the desktop market, shown in Exhibit III-12, is how their companies are perceived by the user community. For example, two companies are known for their mainframe orientation, another as a minicomputer vendor.

EXHIBIT III-12

The Major Vendor Weakness


Company Perception

Desktop services and outsourcing are new markets for most vendors, as well as a new way of doing business for users. Many of the vendors in this market have gotten into outsourcing as a natural offshoot of their professional services or systems integration business. Hardware vendors as well are restructuring and reorganizing to respond to the new IT market demands for services and solutions, rather than being the source for component shopping. As vendors gain more experience and take steps to promote their new business focuses, user perception of possible vendors in this market will change.

7. Successful Relationships Hinge on Nontechnical Factors

According to desktop services users, successful relationships incorporate the following:

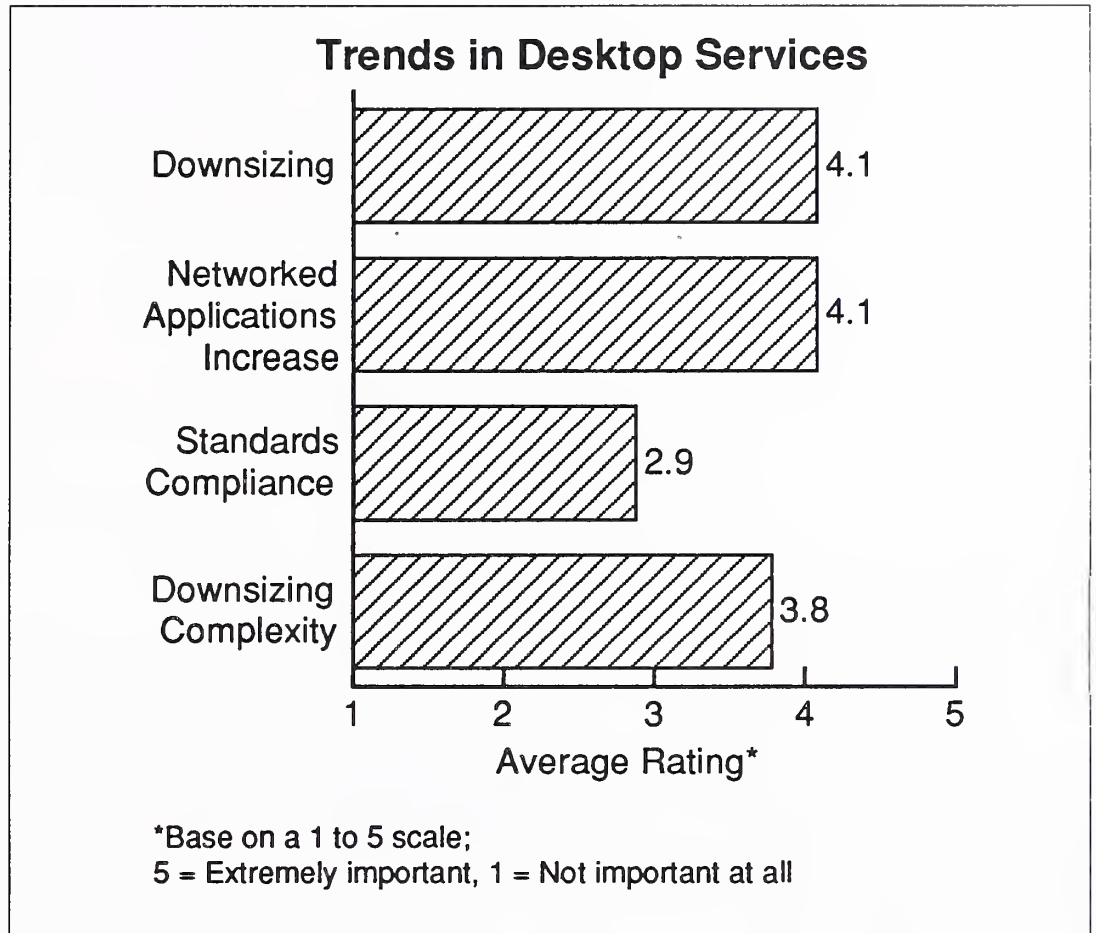
- Communication
- Truth/honesty
- Mutual respect
- Implementation of change management procedures

A good working relationship is based on the same factors at the desktop level as in other outsourcing arrangements. Communications that incorporate honesty and mutual respect foster the development of a business partnership between the vendor and customer. Research has shown outsourcing relationships are usually successful when at least a business partnership exists between the two parties. In a true business partnership, both players share equally in rewards as well as risks. This is also critical at the desktop level. One user reports their desktop contract specified that neither party shall benefit at the expense of the other.

The implementation of change management procedures is especially critical at the desktop level. Many of the services required of vendors are “custom” tailored. Many tasks will evolve over time as applications and requirements change.

Vendors’ ratings of the trends that have the most impact on the desktop services market are displayed in Exhibit III-13. The desktop market is blossoming as downsizing of information systems progresses at the PC level. The downsizing revolution is possible because of the availability of inexpensive, small, yet powerful hardware.

EXHIBIT III-13



Companies that outfit their users with PCs for standalone functions now realize that by networking PCs, significant cost savings can be realized by reducing or eliminating mainframe operations.

Previously, hardware classes were defined based on processing power and price. In today's market, the lines of demarcation between many PCs, workstations, and midsize systems are virtually nonexistent. A good deal of flexibility exists for users to determine just how powerful to make their machines. Applications that previously ran on mainframe platforms now operate in a client/server LAN environment.

Users are also playing a role in stimulating the desktop market. User organizations are clamoring for powerful applications that run in a down-sized environment. Increasingly, applications such as sales management and various customer service applications are required to run at the desktop. New advances in networking technology now allow a desktop operating environment.

While downsized operations usually pass on overall cost savings and improve productivity within an organization, the complexity of managing a diverse downsized environment requires different and diverse technical resources. Companies unwilling to retrain existing IS personnel on desktop and network platforms, or to commit resources to this effort, look to vendors to supply outsourcing services at the desktop level.

Standards compliance received a low average score of importance from vendors as a major trend driving the desktop market, although standards development and compliance are critical issues to user organizations. Standards facilitate portability and interoperability in a downsized environment. Vendors feel they overcome this hurdle by either replacing technology or retooling existing diverse systems. The relatively low cost of COTS hardware and software make system replacement a realistic solution for many desktop services contracts.

Another trend observed by vendors in this market is the increase in custom desktop services arrangements for each contract. The menu approach of possible services does not satisfy each customer's unique business needs. It often has to be supplemented with a customized set of services. Desktop services is rapidly evolving to "desktop support."

D

Vendor Partnerships Complement Any Lacking Abilities and Resource Investments

Users hire vendors to manage their desktop requirements because internal IS staffs are not qualified to handle the magnitude of services required. Another common reason is that companies do not want to commit financial resources to this effort. Vendor operations invariably promise cost savings in comparison to users' internal costs for providing these services.

Most vendors also cannot maintain internal staffing levels permanently to provide all services that customers could possibly want. It is not cost effective. Vendors form alliances with other vendors to provide services based on geographic and technical needs. Exhibits III-14A and III-14B illustrate the frequency with which vendors hire subcontractors to supply various elements of services on desktop-level contracts.

EXHIBIT III-14A

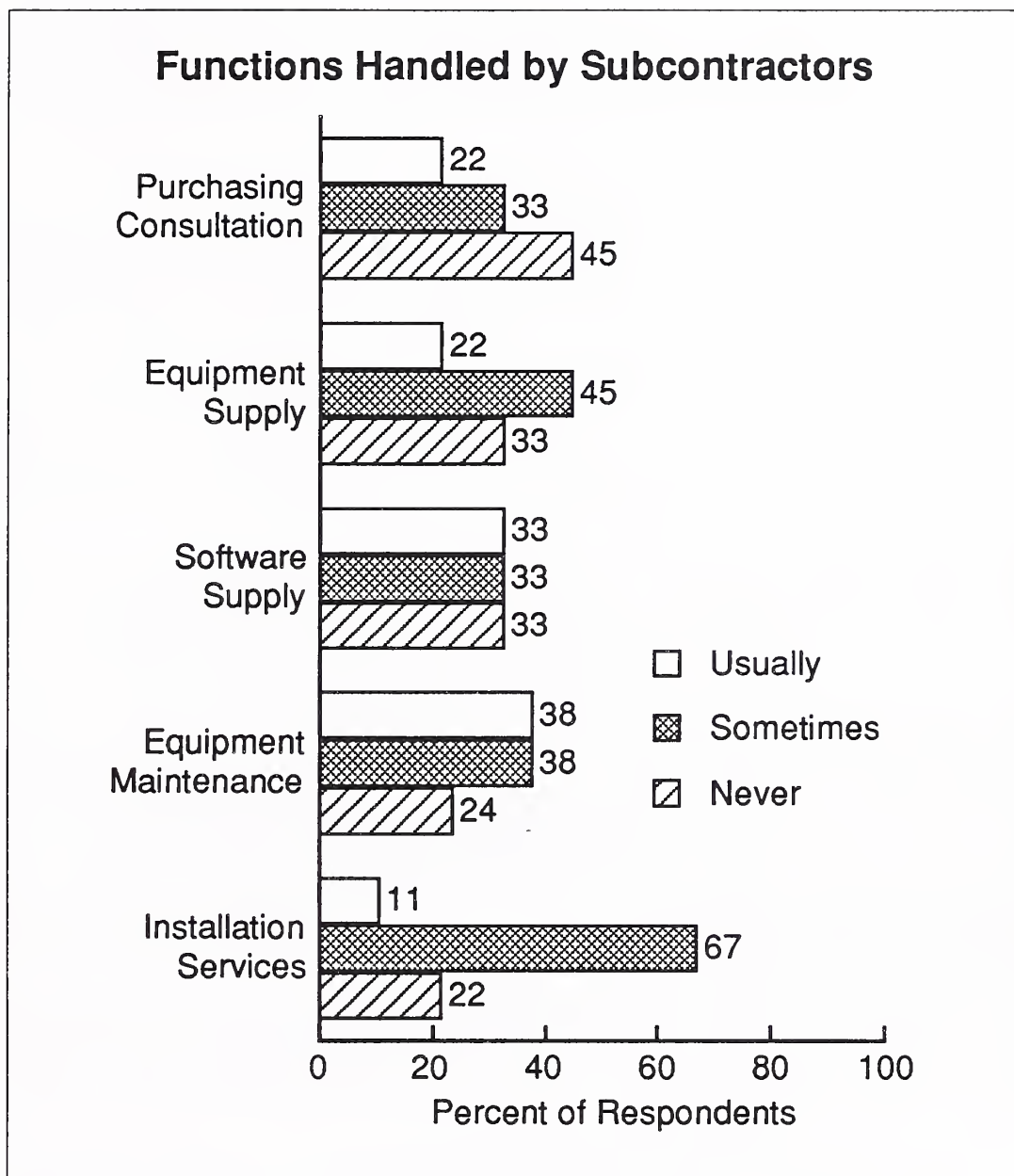
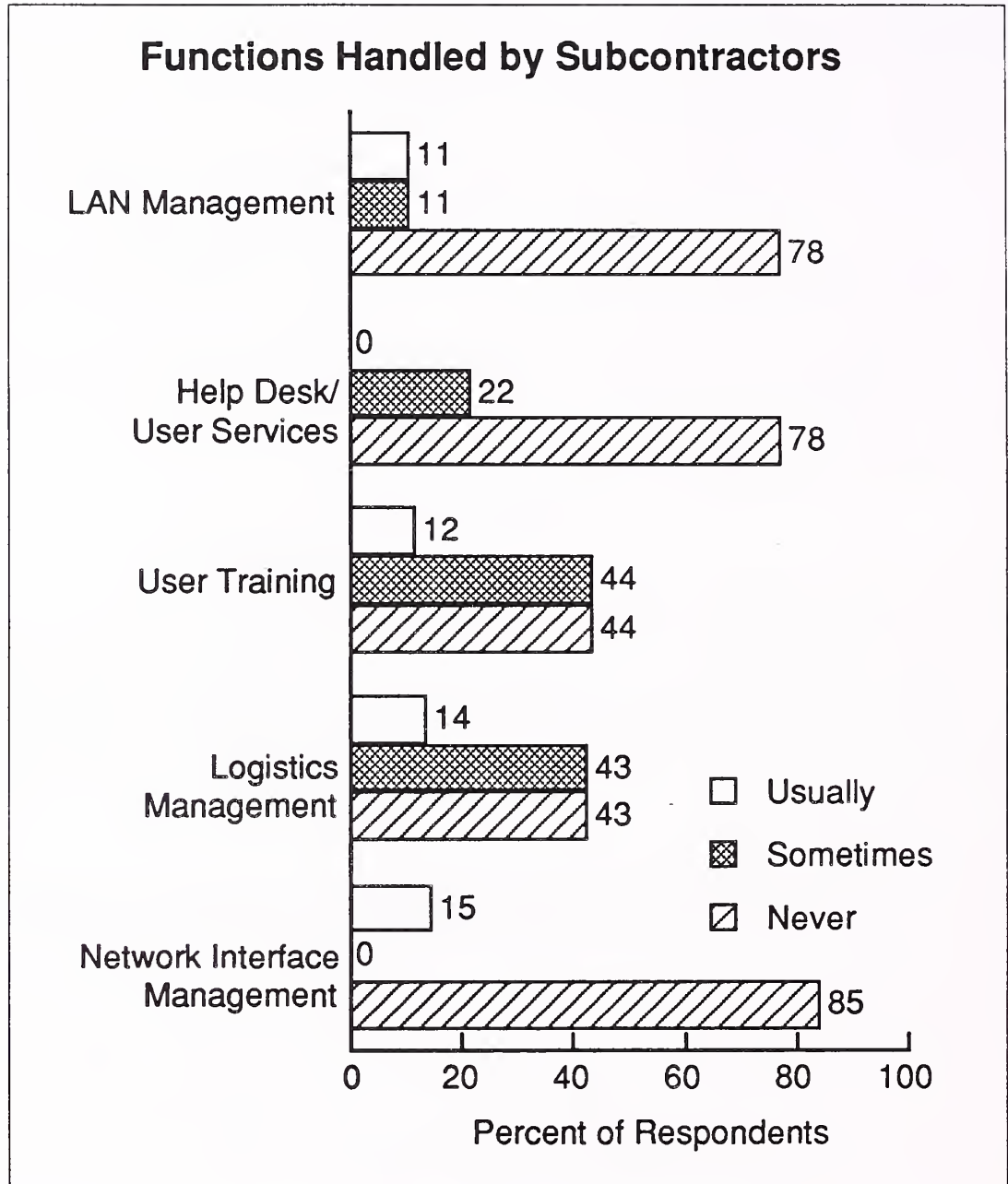


EXHIBIT III-14B



LAN management, help desk/user services, and network interface management are subcontracted least frequently by vendors. Because these functions are viewed as core desktop needs, 78% to 85% of the respondents never subcontract these functions. These services are also the most profitable for vendors, as shown earlier in Exhibit III-8.

Purchasing consultation, user training, and logistics management show some increase in subcontracting activity. Equipment and software supply, equipment maintenance, and installation services are more likely to be provided by subcontractors, as might be expected since they often require wide geographic coverage.

Many of the vendors interviewed for this study are normally considered prime contractors, not subcontractors. However, their responses indicate they will play the role of either a prime or subcontractor in order to get business.

Exhibits III-15A and III-15B illustrate how frequently vendors in this study act in the capacity of a subcontractor to other prime contractors on desktop services contracts. Equipment maintenance, installation services, user training, and logistics management all reside in the "sometimes" category for approximately 80% of the respondents. Very few respondents never function as a subcontractor for any desktop service.

EXHIBIT III-15A

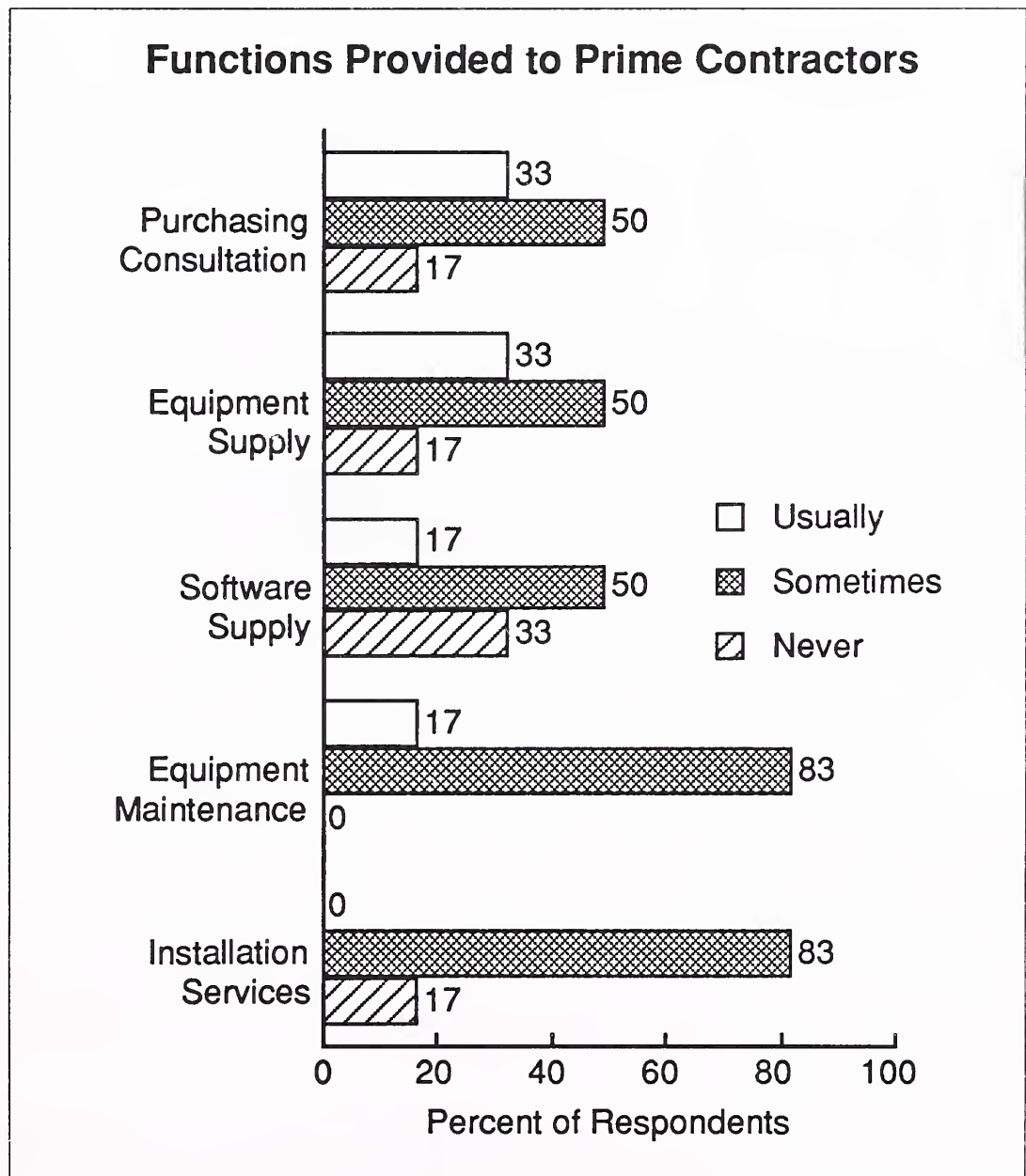
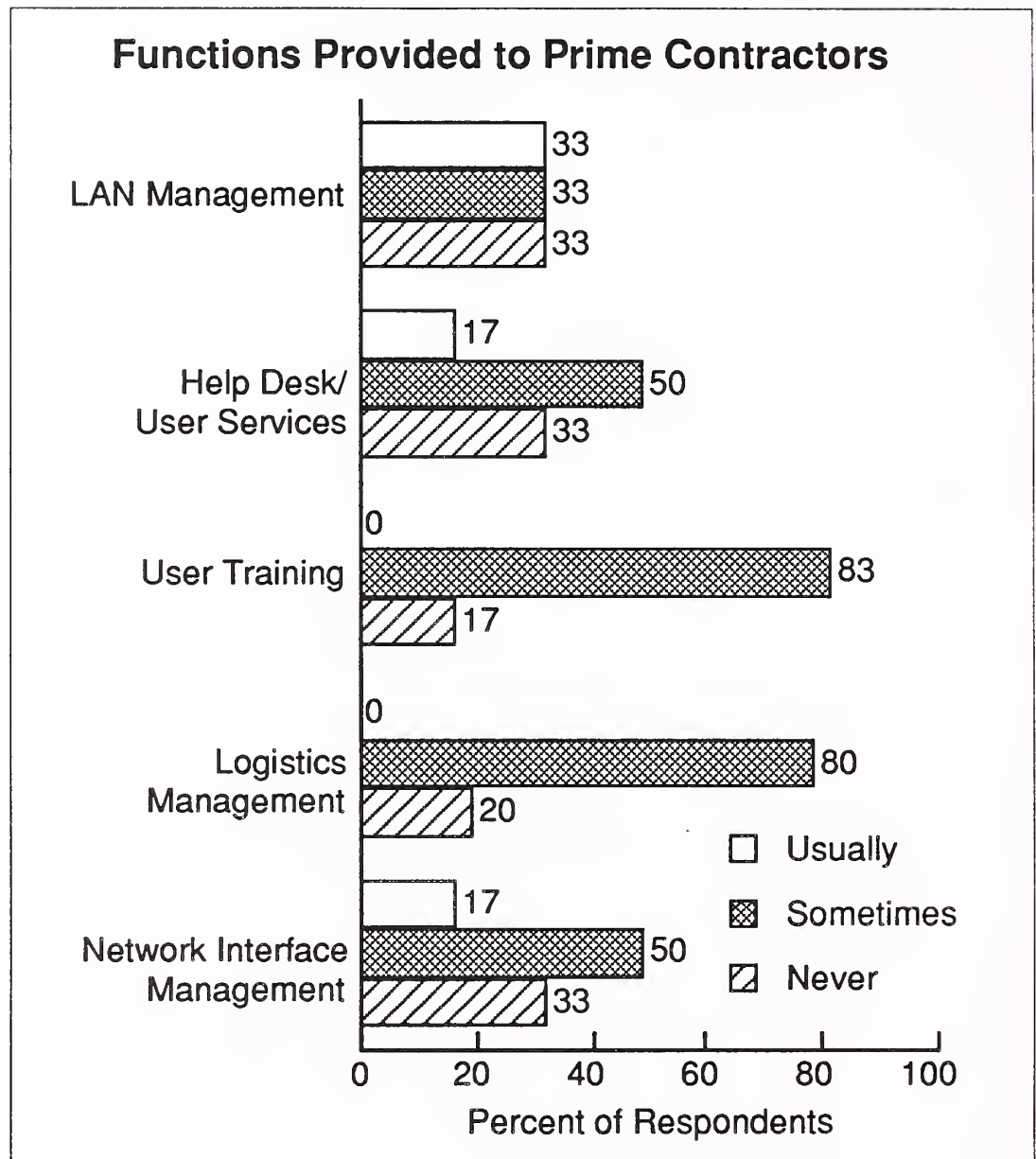


EXHIBIT III-15B



E

Market Summary

Desktop services is a strong, growing market for vendors. The downsizing revolution is primarily stimulating the desktop market. Geographically dispersed companies with over \$200 million in revenues are more likely to buy desktop services.

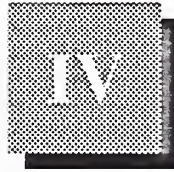
Although the market promises many opportunities, vendors do not find desktop services to be as profitable as they would like. Competitive pricing is driving profit margins down.

A vendor's technical versatility is fast becoming the number-one asset to vendors as users demand more value-added services over the life of a contract.

The success of desktop services contracts is dependent on how a vendor and a customer relate to each other. Communication, honesty, and respect are just as critical as cost and service levels to building a mutually satisfactory relationship between the two parties.

Vendors of desktop services will usually act as either prime or subcontractors to win contracts in this growing market.

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User Purchasing of Desktop Services

This chapter explores why organizations outsource desktop functions, the types of services contracted for, who the decision makers are, and contract length preferences of buyers. How often users incorporate desktop services into larger outsourcing contracts is analyzed in depth. Vendor selection criteria are discussed from a ranking and importance perspective.

A

Why Do Users Buy Desktop Services?—What Do They Buy?

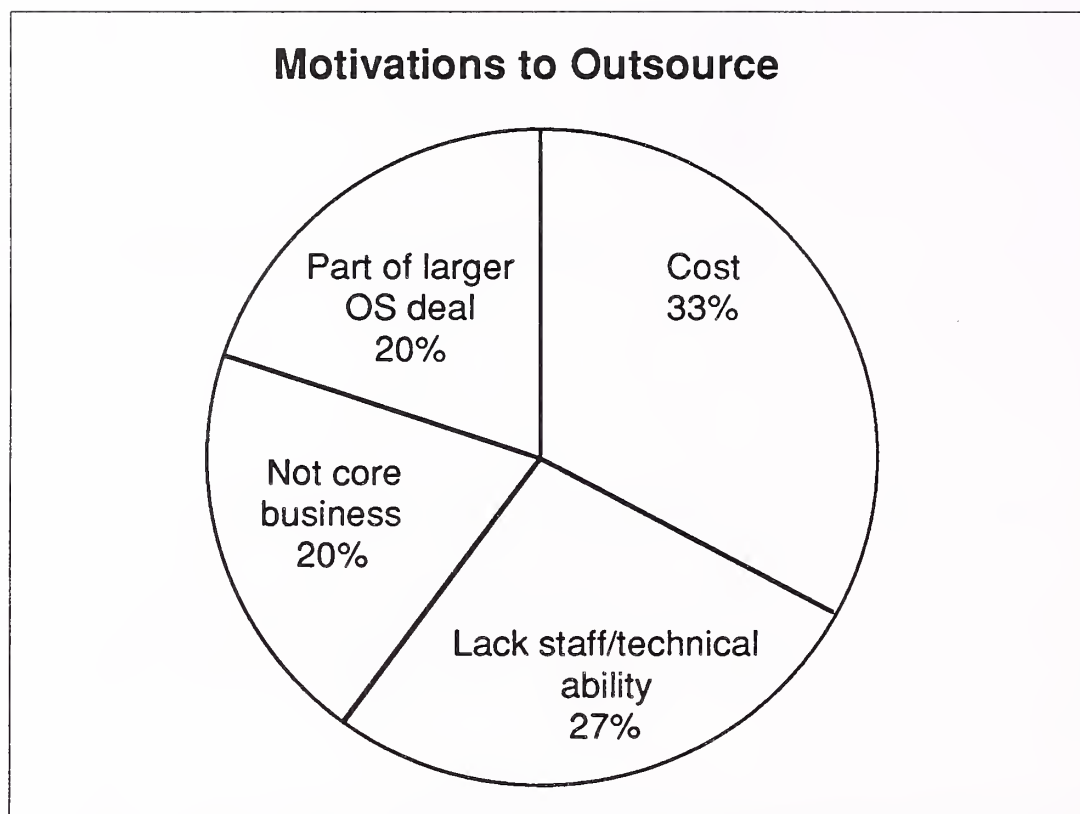
1. Controlling Costs Is the Chief Benefit to Users Outsourcing Desktop Services

As shown in Exhibit IV-1, one-third of the respondents who outsource desktop functions claim cost is the major impetus for making the decision. Not only do vendors usually offer lower costs, desktop expenses become predictable. Companies that use internal IS personnel invariably incur higher costs for staff and purchase decisions. Vendors are usually in a better position to negotiate lower prices for hardware and software since they are purchasing in higher volumes.

The exhibit also points out that almost 30% outsource desktop functions because internal technical staffs cannot adequately perform them. Internal problems usually result from some combination of the following: improper training, insufficient numbers of personnel, new requirements erupting every day, and a diverse hardware environment. The number of users claiming both cost and a lack of technical ability suggests they are of equal importance to those companies making the decision to outsource desktop services.

Another 20% cite desktop services as part of a larger deal; it was not considered as a separate decision. Another 20% decided to outsource at the desktop level because it is not their core business. Most of these users also outsource other IS functions.

EXHIBIT IV-1



Interestingly, each organization offers only one reason why it outsources desktop functions. One should not assume that desktop functions are always viewed as noncore business related. In industries where customer services are paramount, such as banking and insurance, companies may prefer to support the desktop area with internal personnel, while outsourcing all mainframe processing functions. Both classes of operations involve mission-critical applications. However, most mainframe processing operations are viewed as established and unlikely to change. Internal IS departments want to retain control of the desktop to improve their competitive advantage over competitors. Having an outsourcing relationship at the desktop level may possibly limit development efforts. These users do not believe an outside vendor can be as motivated to improve or develop applications that will strengthen a user's business as the user's staff is.

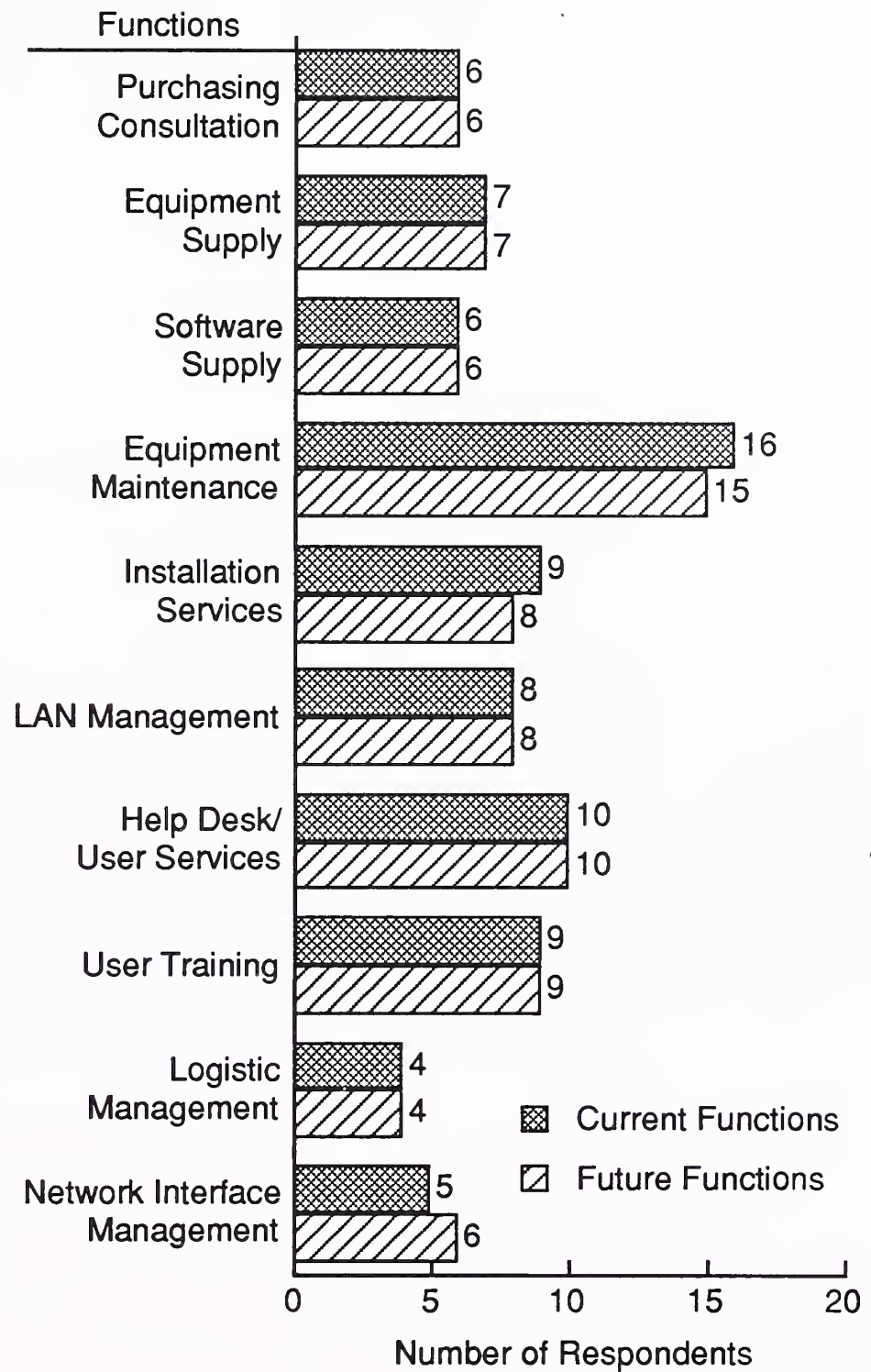
2. The Help Desk Is the Second Most Widely Sought Desktop Service from Vendors

Equipment maintenance has been a mainstay purchase from vendors and continues to grow in demand by user organizations because of the diversity and large numbers of equipment at the desktop level (PCs, workstations, printers and other peripherals).

As a result of the complexity of the growing desktop environment, other services are becoming more commonly purchased from vendors. Exhibit IV-2 shows the desktop functions outsourced by user respondents in this study.

EXHIBIT IV-2

Desktop Functions Outsourced to Vendors



The exhibit implies users outsource those functions having the most unknown components. It also shows that for the most part additional services are not anticipated by users in this study. In fact, one respondent is taking back functionality from its vendor due to nonperformance. In this particular case, the vendor, known for its mainframe expertise, is experiencing difficulty providing services in the customer's client/server environment.

Help desk/user support services is the next most frequently purchased service from vendors. "On the spot" or "at the moment" support is critical to users that depend on desktop equipment to perform their job functions. Questions of the operational variety are best answered by vendors with experience with a wide variety of software. They usually respond in a more timely and cost effective manner.

As desktop operations continue to proliferate in user organizations, so does the need for continuous training of new personnel and retraining of existing personnel. Internal IS departments find it difficult and time-consuming to develop courseware for every possible software package and hardware configuration. A vendor is a more logical choice.

Installation services are also frequently contracted. Again, users feel that those that have the experience should perform the function. At the desktop level, a variety of headaches usually develop during hardware and software installation procedures due to peculiarities in the user's environment.

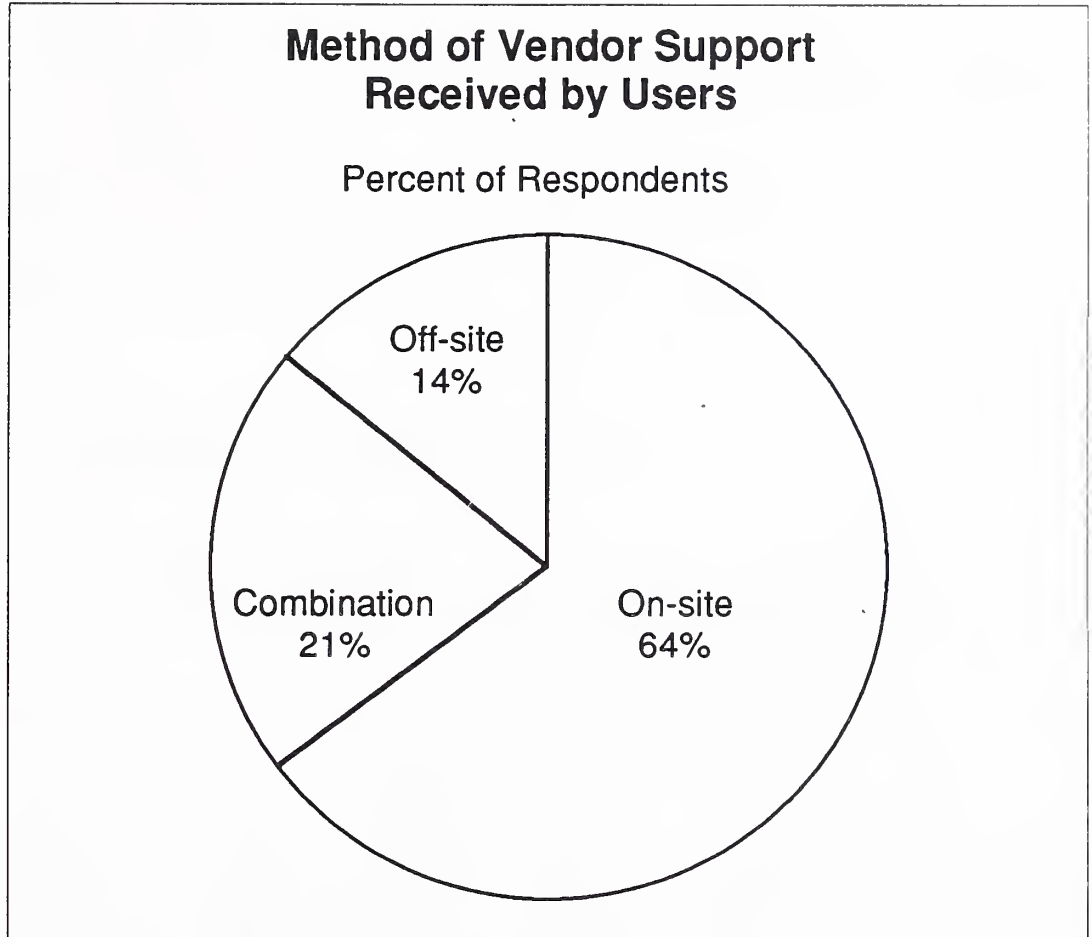
LAN management services are also bought by half of the respondents because they are frequently a demanding function.

Approximately 40% of the sample use vendors for purchasing consultation services and equipment and software supply. These services are somewhat easier to perform internally and may not be needed on a regular basis.

Logistics management or inventory control functions are outsourced by only one-fourth of the users in this study. The low frequency indicates users can easily perform this in-house, or they do not formally track hardware and software inventories.

Almost two-thirds of the users get on-site support from vendors for desktop functions. As shown in Exhibit IV-3, another 20% are getting a combination of on-site and off-site support. The type of service and the level of support needed influence whether a vendor delivers service on-site or off-site.

EXHIBIT IV-3



Help desk functions are normally provided off-site and handled by a vendor's central support personnel dedicated to providing this service to multiple customers. Most customers find it too costly to buy on-site help desk services from a vendor. It is more cost effective for the vendor and the user if help desk functions are provided from a vendor's central location. Maintenance of a large, qualified staff at a customer's site, solely dedicated to that specific customer, is very expensive.

Obviously, installation services, LAN and other network interface management functions, and some aspects of equipment maintenance usually involve the vendor's presence on-site.

Responsibilities for purchase decisions, equipment and software supply, user training, and logistics management are easily fulfilled off-site, and may not need day-to-day attention.

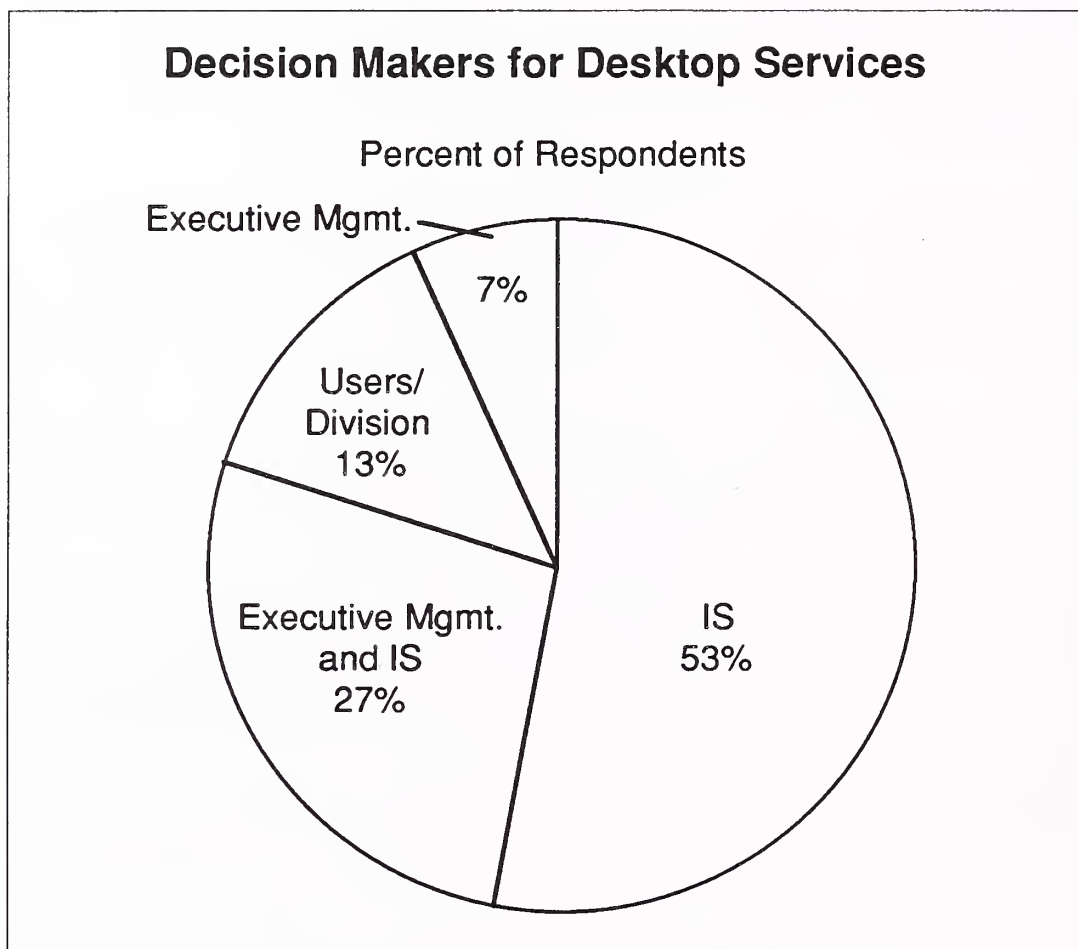
A very small percentage of users are serviced exclusively off-site. Help desk and some forms of equipment maintenance can be supplied off-site.

B

IS Buys and Decides on Desktop Services

Information systems management is involved in making the decision to outsource desktop functions in 80% of the user companies polled. As shown in Exhibit IV-4, IS makes the decision autonomously at over half of the companies. The remaining 30% make the decision in combination with executive management.

EXHIBIT IV-4



INPUT expected this study to show that a large portion of users either make or are involved in making the decision to outsource desktop functions. User control of IS and the waning power of IS within corporate America is not as widespread as believed. The data resulting from this study imply this is only true in 13% of the companies interviewed.

This study does show that slightly more than 50% of those users that outsource desktop functions also outsource other IS functionality (see Exhibit IV-5). The likelihood of a company outsourcing desktop functions is enhanced when other IS functions (i.e., platform operations, applications management, and network operations), or at least platform operations and applications management, are outsourced as well. Desktop

services are often tagged on to the overall outsourcing deal or included in the customer's overall plan to outsource all levels of IS because it is not the company's core business. If the vendor cannot support desktop functionality along with platform operations and applications management, another contract is negotiated with a vendor specializing in desktop services.

EXHIBIT IV-5

Other Functions Outsourced by Desktop Services Users

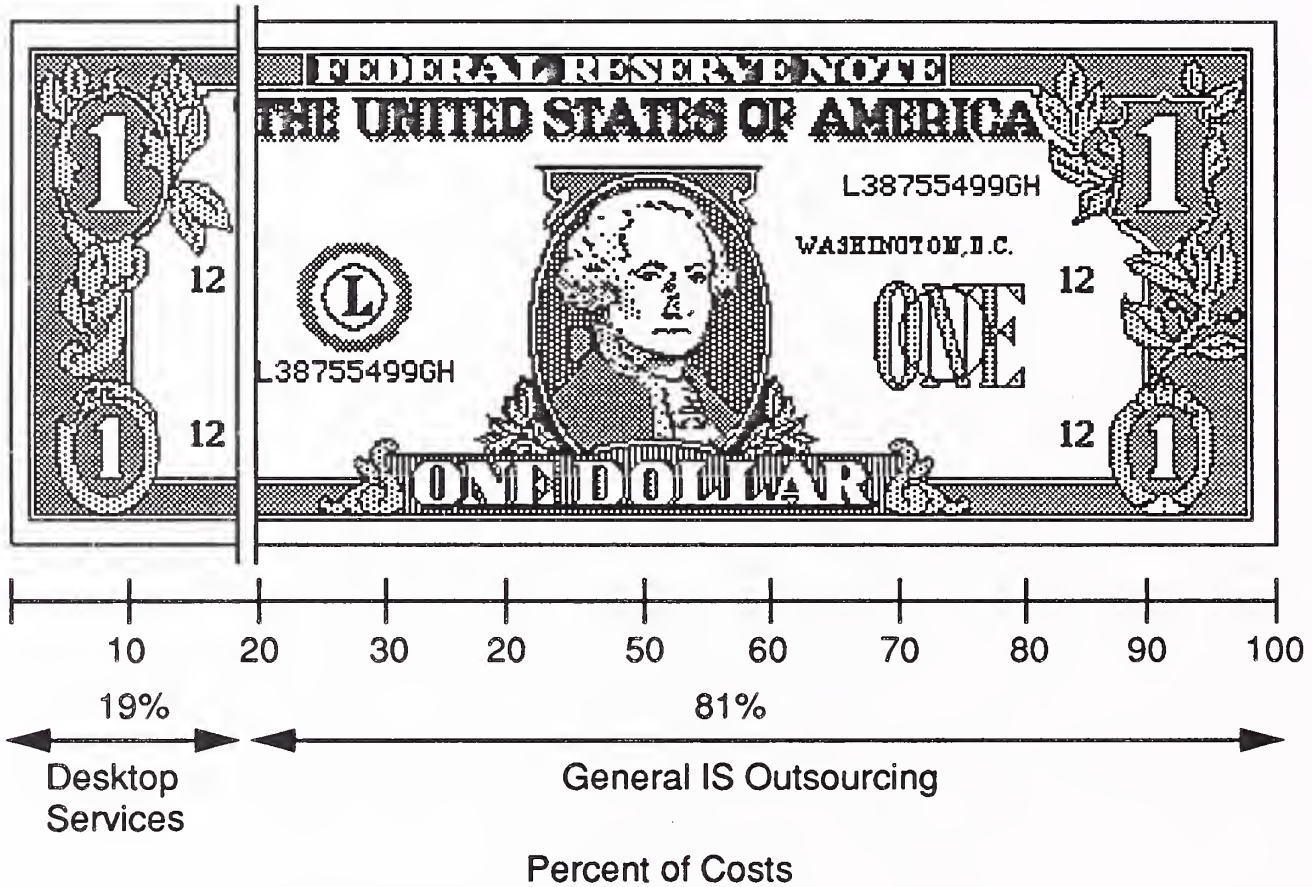
Number of Respondents	Platform Operations	Applications Management	Applications Maintenance	Network Operations
6	✓	✓	-	✓
2	✓	✓	-	-
1	-	-	✓	✓
1	-	-	✓	-
1	-	✓	-	-

Applications maintenance and applications management are rarely outsourced independently of platform operations among the respondent base. This indicates a hesitancy to outsource bits and pieces of information systems processes. When companies give up control of maintaining their applications, they invariably do not want to handle actual computer and network operations either.

Many users regard the desktop as expensive and promising the most headaches operationally. The data show, however, that the average costs for desktop services among users do not exceed 20% of their total IS outsourcing costs, as shown in Exhibit IV-6.

EXHIBIT IV-6

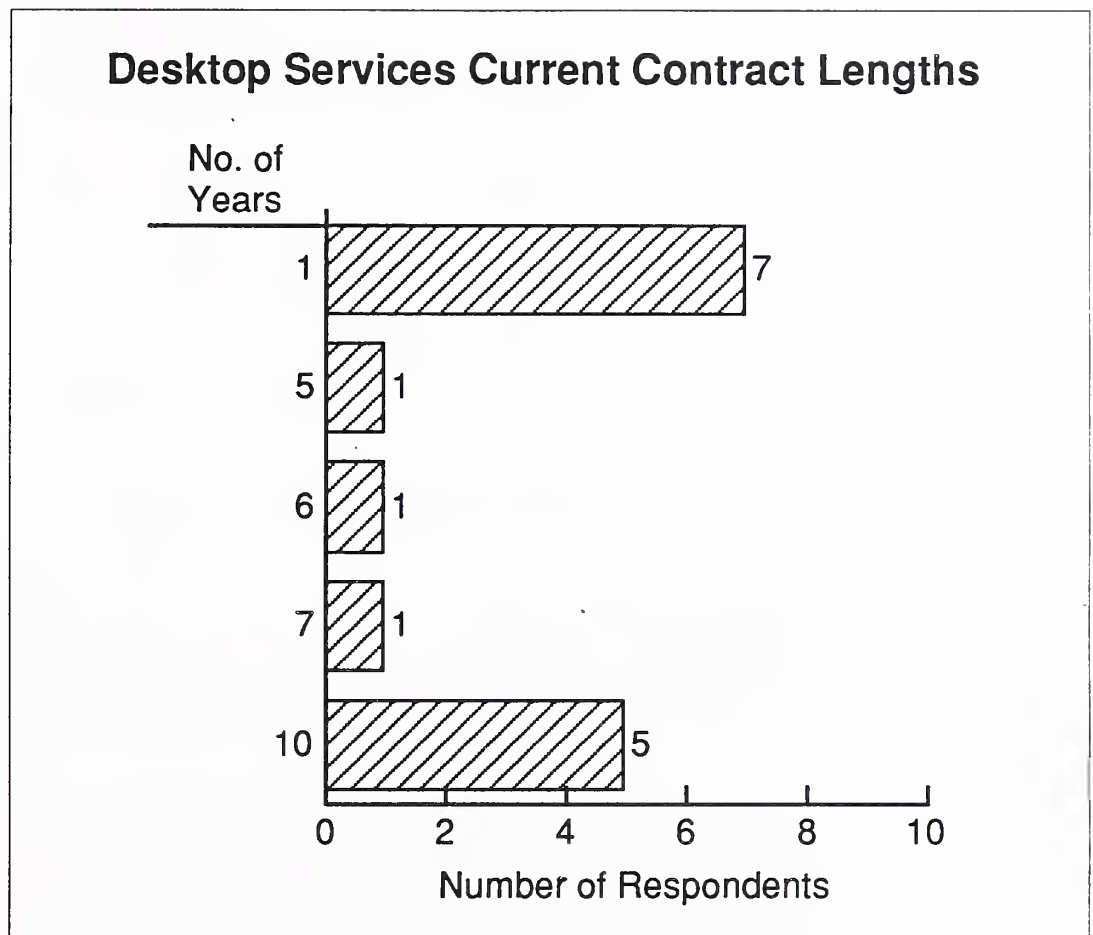
Desktop Services Cost Component of General Outsourcing Contracts



Vendors are able to offer economies of scale to users through services that lend themselves to off-site support (i.e., help desk/user services). Vendors also may discount desktop operations to win overall IS outsourcing contracts.

The contract lengths shown in Exhibit IV-7 reflect whether or not desktop buyers have overall contracts for IS outsourcing, which include desktop functions, or if they have standalone contracts.

EXHIBIT IV-7



Contracts exceeding five years in length incorporate other IS functions. Those under five years are desktop contracts only. Respondents definitely indicated a preference for contracts under five years. In longer-term contracts, the vendor's performance slackens, and control of IS enhancements is usually sacrificed.

C

How Do Vendors Win Contracts?

1. Vendor Selection Factors

The most important vendor evaluation factors to desktop service buyers are ranked in Exhibit IV-8.

EXHIBIT IV-8

Most Important Evaluation Factors

Factor	Rank*
Price	1
Proposed solution/service	1
Reliability/deliverability	3
Business knowledge	3

*Rank based on frequency of mention.

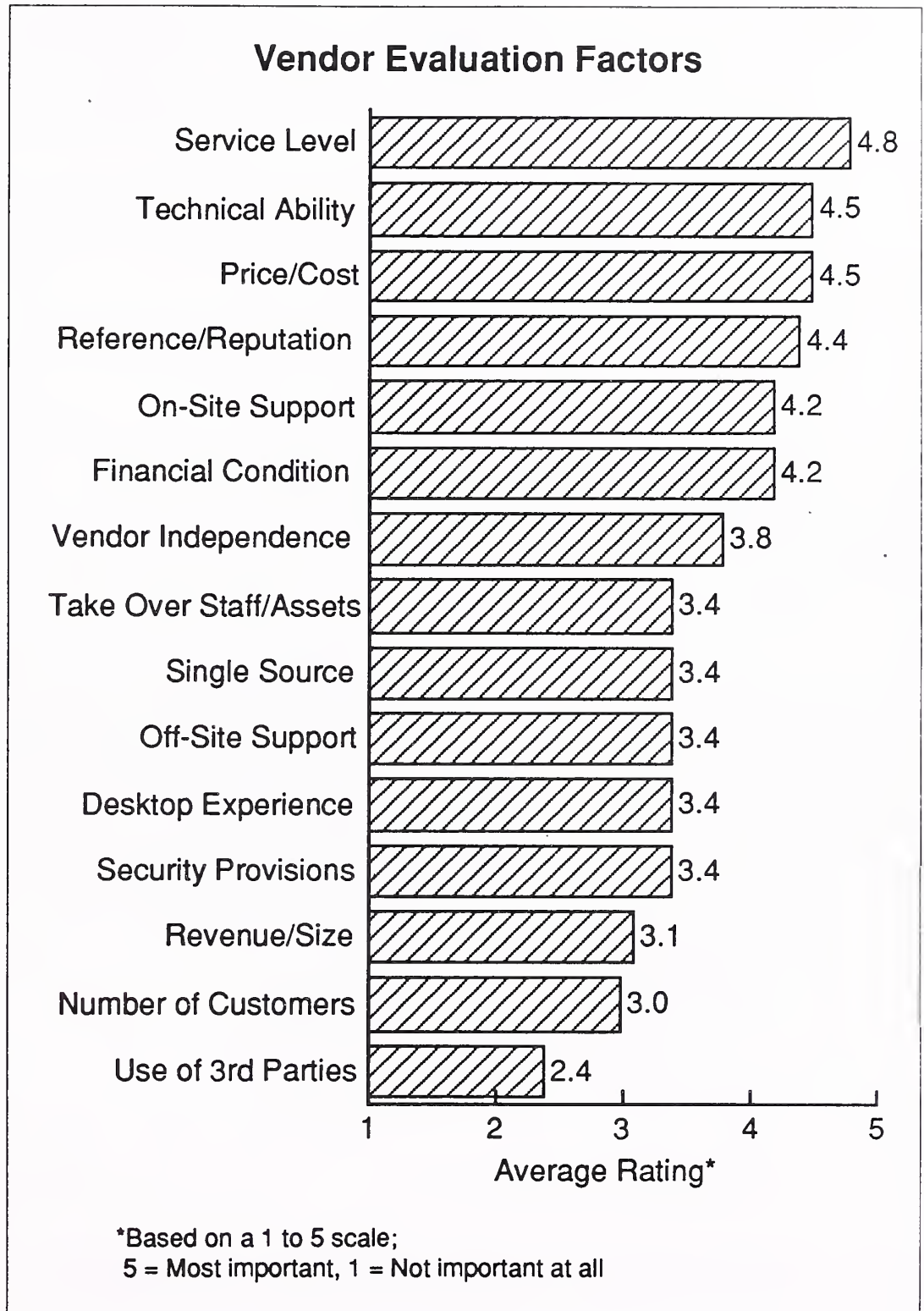
Price and technical/service level solutions are equally important and carry the most weight with user respondents during desktop evaluations. The vendor's ability to deliver as promised and demonstrate knowledge of the customer's business will also go far in helping to win a desktop contract.

Deliverability issues are critical at the desktop level. The desktop is a demanding and diverse environment that requires immediate service responses to allow users to perform their everyday job functions. If the vendor's staff has similar business processes experience to their customers, support questions are generally solved promptly. The customer and the vendor "speak the same language" and communication bottlenecks are reduced.

INPUT also asked respondents to rate specific vendor selection criteria on a 1-5 importance scale. The average ratings given to each criterion in Exhibit IV-9 confirm users' rankings discussed in Exhibit IV-8. How the vendor will eventually perform, based on anticipated service levels and technical ability, are rated almost the same as cost.

Overall, factors having the propensity to offer the most value-added services (i.e., the proposed service level, technical ability, and on-site support) carry the most weight with users. The vendor's reputation for providing desktop services on other contracts also weighs heavily in the award decision. In addition, the vendor's financial condition can be an important consideration. Users prefer to work over the long term with a vendor, even though short-term contracts are preferred to keep vendors on their toes. It is difficult to develop business partnerships and a high quality of service in a short-term relationship. If a vendor does not appear to have a predictable and stable future, users will be reluctant to sign contracts with them.

EXHIBIT IV-9



Users gave vendor independence an average score of 3.8, indicating that a good deal of importance is attributed to the vendor's ability to provide or support multiple manufacturers and diverse product lines. Having the ability to support multiple types of hardware and software is normally considered essential at the desktop level.

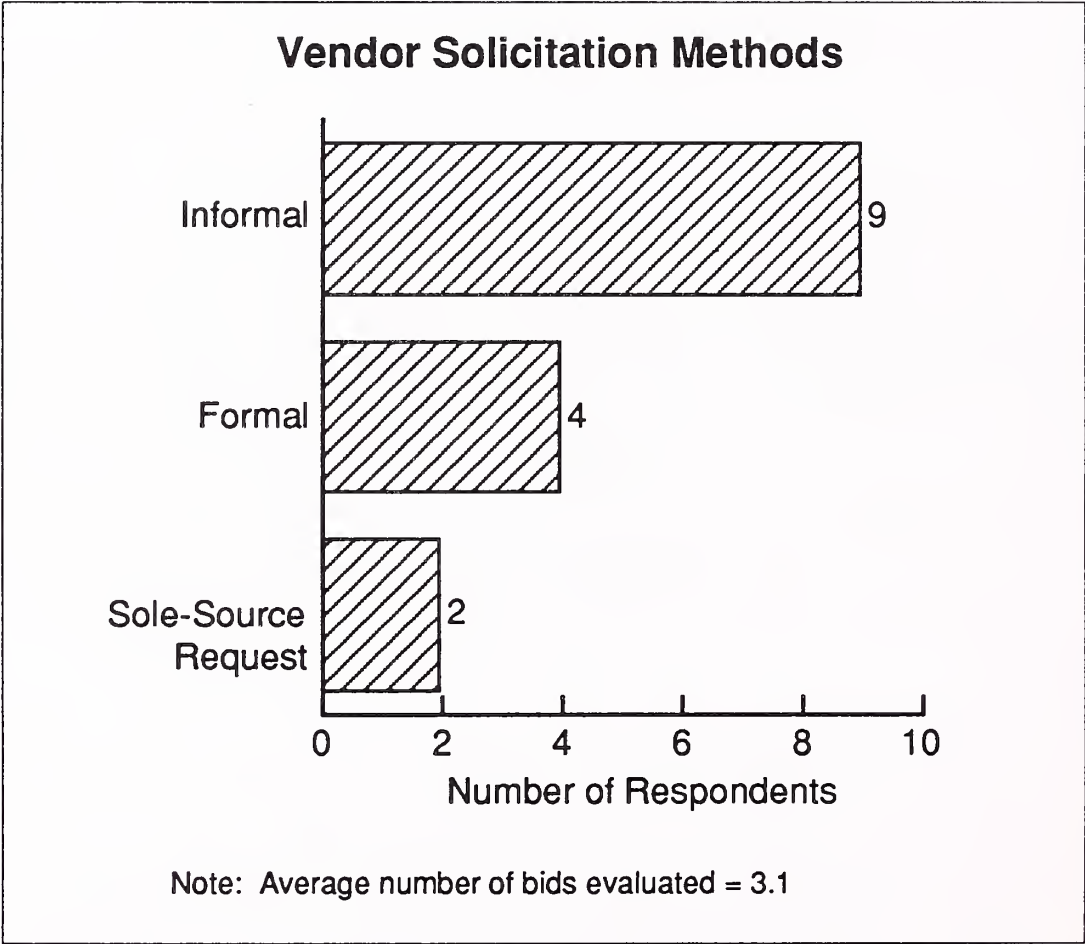
The average score given to desktop experience suggests that this qualification in and of itself is not sufficient for buyers to make the purchasing decision. Experience should be coupled with a good, solid reputation or references based on prior experience providing desktop services.

Factors relating to company characteristics are least important to desktop buyers. Company size, revenue, number of clients, and whether or not the vendors use subcontractors have little influence in contract award decisions.

2. Vendors Are Often Solicited Informally

In the outsourcing arena it is not unusual for potential buyers to informally solicit or sound out potential vendors. Buyers of desktop services do not appear to be different, as shown in Exhibit IV-10.

EXHIBIT IV-10



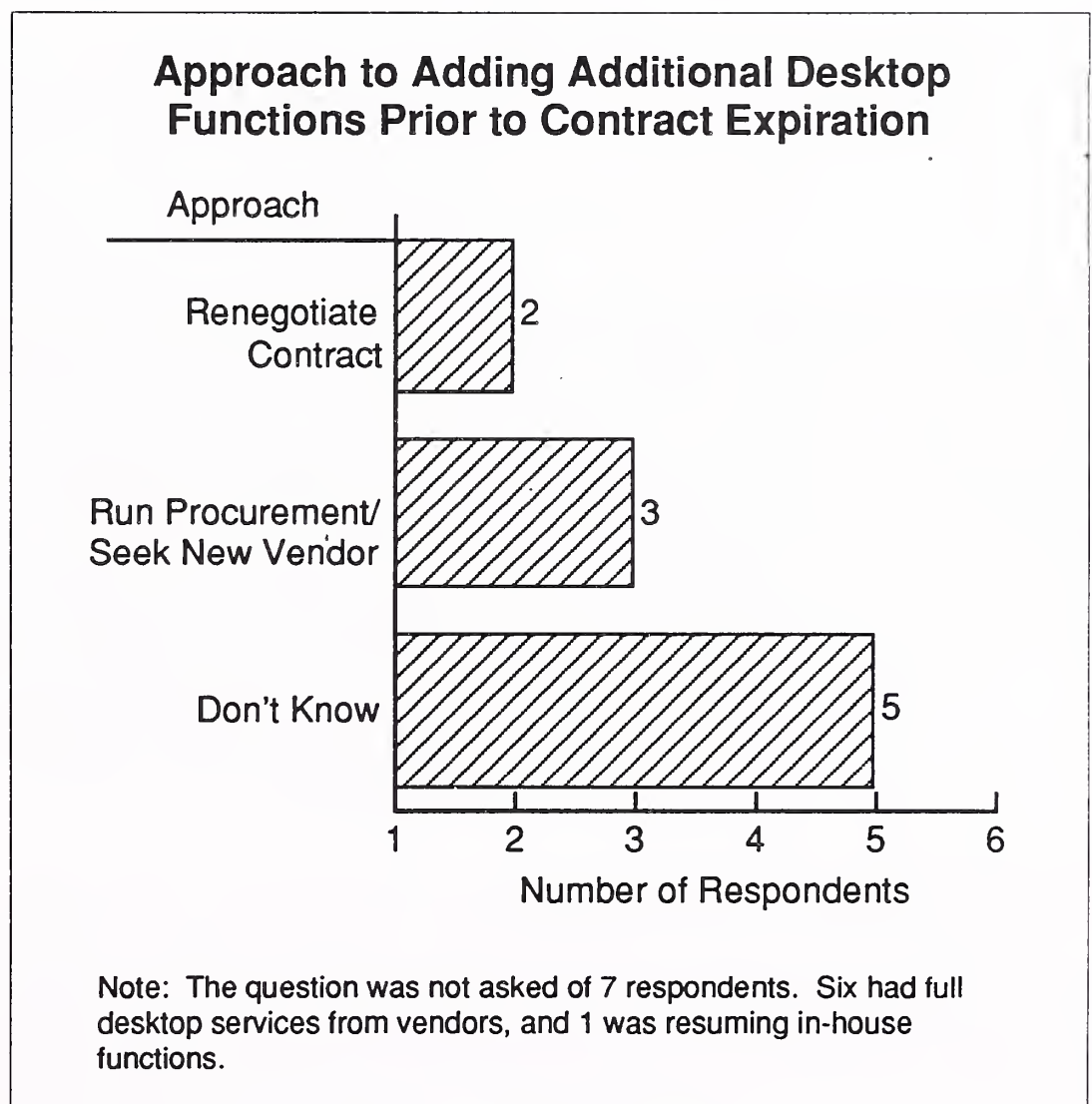
The outsourcing buying process is conducted somewhat less formally than purchases for other IS products and services. INPUT believes this practice has its roots in the need for a business partnership to develop between the two parties. This is only possible when the right chemistry has developed between the buyer and the vendor. Many feel a less structured “solicitation” approach to vendors creates an atmosphere more conducive to nurturing a productive relationship.

Potential buyers are in the habit of approaching vendors based on referrals or publicly known reputations. Few formal vendor evaluations are conducted by buyers. In this study an average of only 3.1 vendor bids or proposals were considered by desktop buyers for each contract.

3. Adding Additional Services to Contracts

INPUT asked ten desktop users with contracts covering only a few desktop services how they would go about gaining additional desktop functionality prior to their current contract's expiration. As shown in Exhibit IV-11, half responded with "don't know" because they have no reason to add additional services. Service needs are already determined.

EXHIBIT IV-11

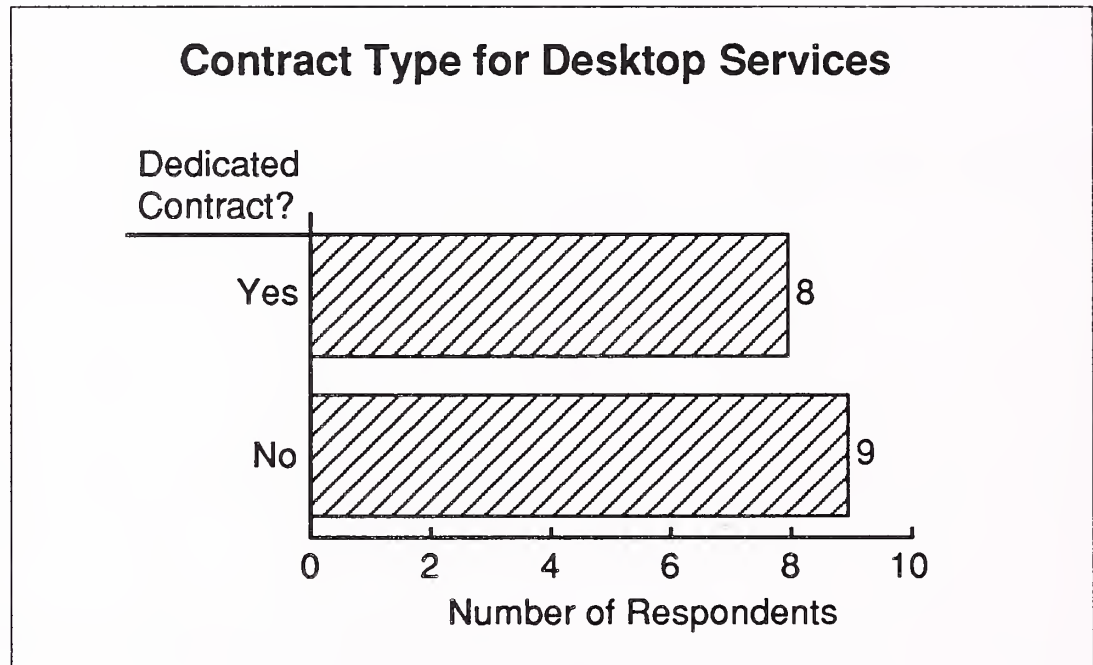


D

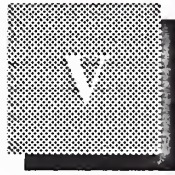
Dedicated Desktop Contracts Do Not Predominate

Desktop services buyers in this study are almost as likely to purchase these services as a separate contract as to include them in a larger outsourcing contract. Exhibit IV-12 shows the users' responses as to whether or not a dedicated desktop services contract vehicle is in place.

EXHIBIT IV-12



Based on users' responses, a double-headed market currently exists for desktop services. Those companies intending to outsource other IS functions or already doing so are natural markets for adding desktop services to their contracts. The other half of the market appears to be driven by downsizing complications, and seeks vendors only for their varied technical expertise at the desktop level.



Recommendations

This concluding chapter offers strategies to vendors on how to capitalize on the desktop services market and recommends vendor management tactics to users.

A

All-Around Flexibility Is the Key to Success for Vendors

Flexibility is the key to success for vendors in the desktop services market. Vendors should follow the guidelines listed below to establish or solidify their positions in the marketplace.

- Promote downsizing
- Offer and provide value-added services
- Develop customer industry knowledge
- Develop new technical capability
- Employ more management tools
- Market to IS now
- Watch for end-user control of the desktop
- Offer shorter contract lengths
- Stress lower cost of desktop services outsourcing
- Broaden client penetration

Most vendors are trying to diversify and expand their product and services offerings in the information systems industry as traditional lines of business become less profitable, or demand for these services shrinks. Vendors should not view downsizing as a threat to their business. They should take steps to actively promote the downsizing trend occurring in many U.S. companies today.

This market is expected to undergo a 31% growth rate by 1997, while other, more traditional pieces of the outsourcing market are expected to grow at slower rates. The desktop arena should be easy to promote because most IS departments face smaller operating budgets while the

demands from user organizations for technological changes remain high. IS departments want predictable operating costs, enforceable standards, and withdrawal from daily operating and management problems. Vendors in this market can offer these services to organizations.

Potential buyers are beginning to shop for value-added services from vendors. They want the vendor to take responsibility for automatic hardware and software upgrades. Contracts will contain this flexibility in the future.

Part of the key to offering value-added services to users is for vendors to develop knowledge about a customer's business. The vendor's goal should be to become a business partner with the customer. The vendor is then able to offer industry-specific alternatives and improvements to the customer's desktop operations. Offering value-added services often places the vendor in the position of building new business with the customer in the areas of applications management or systems integration if these services are not included in a current contract.

Vendors should not expect to survive with their present technical capabilities. The use of IT itself and its applications are changing dramatically at the desktop level. For example, geographic information systems and imaging technologies are beginning to play major roles in organizations and governments in a variety of application areas. These now run in the desktop environment. The intricacies of these technologies require vendor development, conversion, and management. Vendors must constantly retool their existing personnel, search for new talent, devote resources to research and development, and maintain their networks of alliances with other vendors.

The use of management tools is becoming more acute as the desktop outsourcing market develops. As more value-added services are required by users, vendors must be able to track improvements and estimate impacts on operational functions. As users turn over more IS desktop functionality to vendors (i.e., applications management), outsourcing at the desktop level will take on more systems integration attributes, and thus some of its problems.

Because this study points to IS management as the current critical desktop decision makers, vendors should stress marketing efforts directed to this level of personnel. However, watch for end users to have increasing input and/or control of the outsourcing decision as downsizing of mission-critical applications continues.

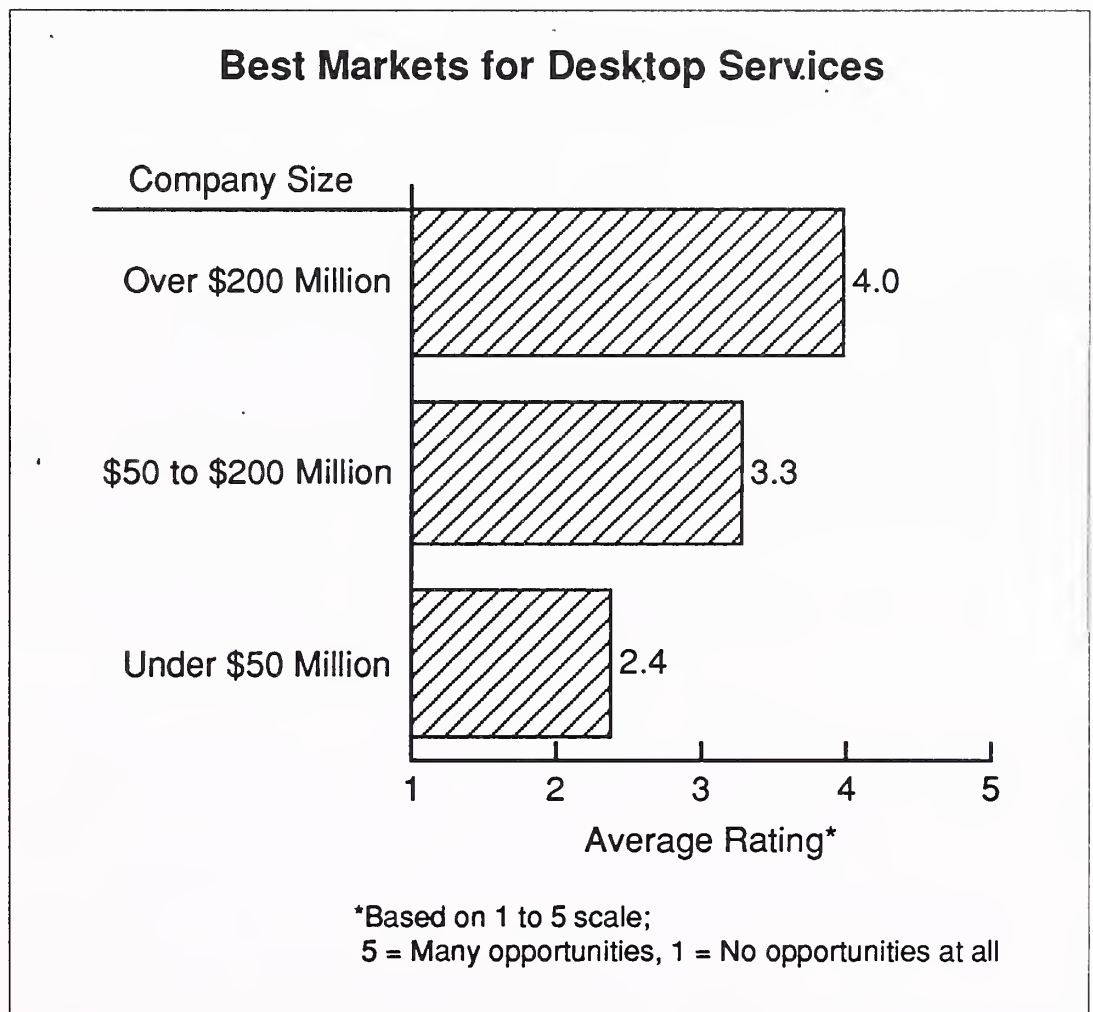
Shorter contract terms have a lot of appeal to buyers. It gives them better control over their operations. This is especially important to reluctant buyers, and those that might have had bad experiences with previous vendors.

A vendor should encourage a potential buyer to conduct an internal cost assessment of providing the same services that the vendor is proposing. Often buyers are not comparing apples to apples, but oranges to apples.

Vendors should also be ready to cut their prices as competition in this market intensifies as a result of new vendors entering the market and established vendors becoming more willing to undercut their profits to win contracts.

Although it is easiest for vendors to pursue desktop business among their existing client base or industries of specialization, the desktop services market is just starting to open up. Right now the prime market for desktop services is companies with revenues in excess of \$200 million (see Exhibit V-1).

EXHIBIT V-1



Companies with multiple locations are also likely candidates for vendor services. As the client/server trend intensifies in smaller and medium-sized companies, they too will look to vendors to provide administrative and technical management of their desktop platforms. The time is rapidly approaching when most employees in a wide variety of industries will have a PC/terminal/notebook or some other computerized device at their desks. Most industries have at least a 40% PC use among their employees at this time.

B**Users Should Establish Their Position Early**

User organizations entering the desktop market for the first time, or those adding new functions or recompeting existing contracts will find the following suggestions extremely helpful:

- Demand solutions, not just services
- Actively solicit vendors
- Require rapid problem resolution
- Leave the desktop to vendors

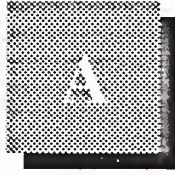
During initial discussions with vendors, potential buyers should make it clear they are not interested in purchasing operational services only. Business solutions are what is necessary from a vendor. If the vendor is not willing to discuss “options,” value-added services, or automatic upgrades of hardware and software known as technology enhancements, discussions should be ended immediately.

Too often potential outsourcers do not take the time to evaluate a number of vendors’ services. Some decisions are made on discussions only, or on very few proposals. Considering the large size of most desktop contracts, and that services rendered will most likely directly impact the functioning of a business, users need to actively solicit vendor proposals. Users often complain that they do not know which vendors to contact. This problem is becoming less and less acute as many of the PC distributor channels get into the market.

Potential buyers should let potential vendors know they will be evaluating several bids. This should improve competitive pricing and service proposals.

Demand rapid problem resolution and demonstrations of change management procedures from vendors. If the vendor can not respond, the vendor has not developed formal management or desktop operational methodologies. The vendor would probably experience difficulty in providing desktop services to the customer’s satisfaction.

The reality of managing the chaotic desktop environment that exists in most companies today is prodding reluctant buyers to give up operational control at this level. Technology is still exploding as smaller, higher-capacity machines are developed, new software applications emerge, and networking needs and technologies increase. Users should admit that vendors are better equipped to do a better job!



Definition of Terms

A

Introduction

INPUT's *Definition of Terms* provides the framework for all of INPUT's market analyses and forecasts of the information services industry. It is used for all U.S. programs. The structure defined in Exhibit A-1 is also used in Europe and for the worldwide forecast.

One of the strengths of INPUT's market analysis services is the consistency of the underlying market sizing and forecast data. Each year INPUT reviews its industry structure and makes changes if they are required. When changes are made they are carefully documented and the new definitions and forecasts reconciled to the prior definitions and forecasts. INPUT clients have the benefit of being able to track market forecast data from year to year against a proven and consistent foundation of definitions.

For 1992 INPUT has added one delivery mode and defined three new submodes to its Information Services Industry Structure:

- *Equipment Services* has been added as the ninth delivery mode. INPUT has forecasted the equipment maintenance, support and related services market through its Customer Services Programs for a number of years. Starting in 1992, the equipment services portion of the customer services market will be included in the total information services industry as defined by INPUT. Other portions of this market (such as software support) are already included.
- Two new submodes have been defined in the *Systems Operations* delivery mode - *desktop services* and *network management*. They are defined on pages 5 and 6.
- A fourth submode has been defined within the Professional Services delivery mode—*applications management*. This change reflects a shift in the way some software development and maintenance services are purchased. A complete definition is provided on page 6.

A series of definitions for computer equipment have also been added.

Changes from the 1991 INPUT *Definitions of Terms* are indicated with a ☆.

B

Overall Definitions and Analytical Framework

1. Information Services

Information Services are computer/telecommunications-related products and services that are oriented toward the development or use of information systems. Information services typically involve one or more of the following:

- Use of vendor-provided computer processing services to develop or run applications or provide services such as disaster recovery or data entry (called *Processing Services*)
- A combination of computer equipment, packaged software and associated support services which will meet an application systems need (called *Turnkey Systems*)
- Packaged software products, including systems software or applications software products (called *Software Products*)
- People services that support users in developing and operating their own information systems (called *Professional Services*)
- The combination of products (software and equipment) and services where the vendor assumes total responsibility for the development of a custom integrated solution to an information systems need (called *Systems Integration*)
- Services that provide operation and management of all or a significant part of a user's information systems functions under a long-term contract (called *Systems Operations*)
- Services that support the delivery of information in electronic form—typically network-oriented services such as value-added networks, electronic mail and document interchange (called *Network Applications*)
- Services that support the access and use of public and proprietary information such as on-line data bases and news services (called *Electronic Information Services*)
- Services that support the operation of computer and digital communication equipment (called *Equipment Services*)

In general, the market for information services does not involve providing equipment to users. The exception is where the equipment is part of an overall service offering such as a turnkey system, a systems operations contract, or a systems integration project.

The information services market also excludes pure data transport services (i.e., data or voice communications circuits). However, where information transport is associated with a network-based service (e.g., electronic data interchange services), or cannot be feasibly separated from other bundled services (e.g., some systems operations contracts), the transport costs are included as part of the services market.

The analytical framework of the information services industry consists of the following interacting factors: overall and industry-specific business environment (trends, events and issues); technology environment; user information system requirements; size and structure of information services markets; vendors and their products, services and revenues; distribution channels; and competitive issues.

2. Market Forecasts/User Expenditures

All information services market forecasts are estimates of *User Expenditures* for information services. When questions arise about the proper place to count these expenditures, INPUT addresses them from the user's viewpoint: expenditures are categorized according to what users perceive they are buying.

By focusing on user expenditures, INPUT avoids two problems which are related to the distribution channels for various categories of services:

- Double counting, which can occur by estimating total vendor revenues when there is significant reselling within the industry (e.g., software sales to turnkey vendors for repackaging and resale to end users)
- Missed counting, which can occur when sales to end users go through indirect channels such as mail order retailers

Captive Information Services User Expenditures are expenditures for products and services provided by a vendor that is part of the same parent corporation as the user. These expenditures are not included in INPUT forecasts.

Non-captive Information Services User Expenditures are expenditures that go to vendors that have a different parent corporation than the user. It is these expenditures which constitute the information services market analyzed by INPUT and that are included in INPUT forecasts.

3. Delivery Modes

Delivery Modes are defined as specific products and services that satisfy a given user need. While *Market Sectors* specify *who* the buyer is, *Delivery Modes* specify *what* the user is buying.

Of the nine delivery modes defined by INPUT, six are considered primary products or services:

- *Processing Services*
- *Network Services*
- *Professional Services*
- *Applications Software Products*
- *Systems Software Products*
- *Equipment Services*

The remaining three delivery modes represent combinations of these products and services, combined with equipment, management and/or other services:

- *Turnkey Systems*
- *Systems Operations*
- *Systems Integration*

Section C describes the delivery modes and their structure in more detail.

4. Market Sectors

Market Sectors or markets are groupings or categories of the buyers of information services. There are three types of user markets:

- *Vertical Industry* markets, such as Banking, Transportation, Utilities, etc. These are called “industry-specific” markets.
- *Functional Application* markets, such as Human Resources, Accounting, etc. These are called “cross-industry” markets.
- *Other* markets, which are neither industry- nor application-specific, such as the market for systems software products and much of the on-line data base market.

Specific market sectors used by INPUT are defined in Section E, below.

5. Trading Communities

Information technology is playing a major role in re-engineering, not just companies but the value chain or *Trading Communities* in which these companies operate. This re-engineering is resulting in electronic commerce emerging where interorganizational electronic systems facilitate the business processes of the trading community.

- A trading community is the group or organizations—commercial and non-commercial—involved in producing a good or services.
- Electronic commerce and trading communities are addressed in INPUT's EDI and Electronic Commerce Program.

6. Outsourcing

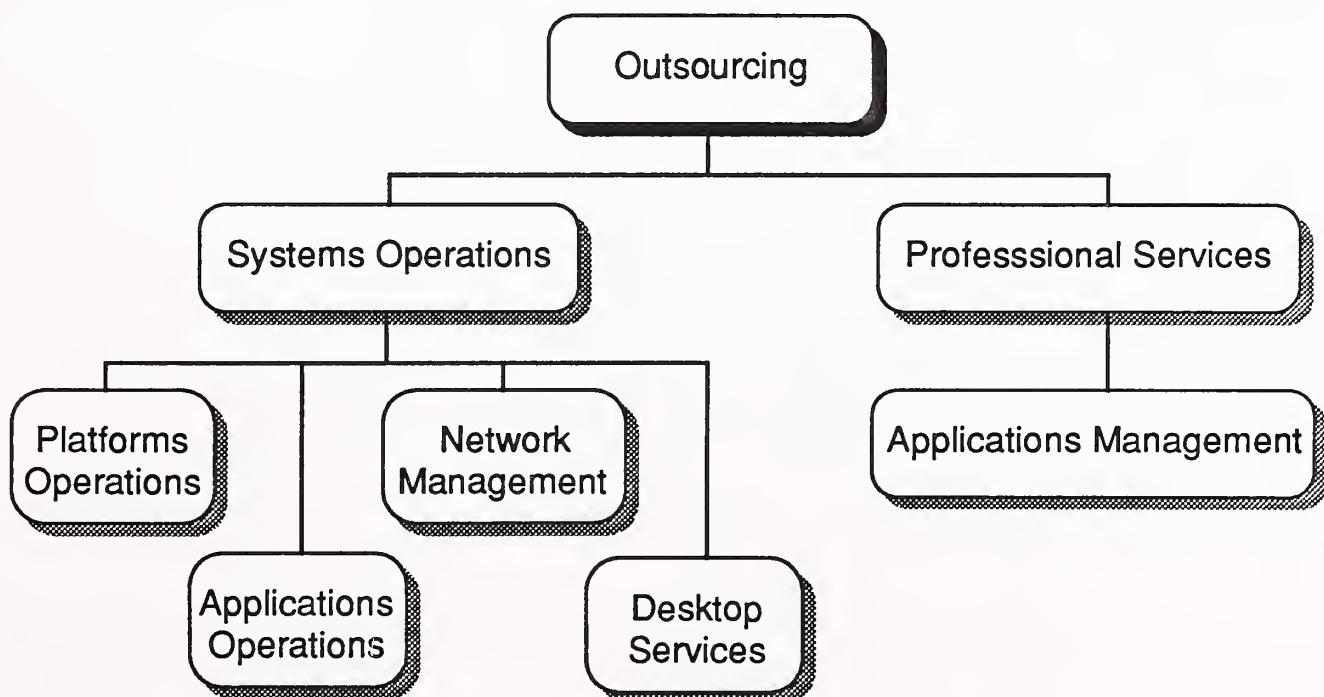
Over the past few years a major change has occurred in the way clients are buying some information services. The shift has been labeled *outsourcing*.

INPUT views outsourcing as a change in the form of the client/vendor relationship. Under an outsourcing relationship, all or a major portion of the information systems function is contracted to a vendor in a long-term relationship. The vendor is responsible for the performance of the function.

INPUT considers the following submodes to be outsourcing-type relationships and in aggregate to represent the outsourcing market. See Exhibit A-1. Complete definitions are provided in Section C of this document. INPUT provides these forecasts as part of the corresponding delivery modes.

EXHIBIT A-1

Outsourcing Components INPUT's View



- *Platform Systems Operations* - The vendor is responsible for managing and operating the client's computer systems.
- *Applications System Operations* - The vendor is responsible for developing and/or maintaining a client's applications as well as operating the computer systems.
- ☆ *Network Management* - The vendor assumes full responsibility for operating and managing the client's data communications systems. This may also include the voice communications of the client.
- ☆ *Applications Management/Maintenance* - The professional services vendor has full responsibility for developing and/or maintaining some or all of the applications systems that a client uses to support business operations. The services are provided on a long-term contractual basis.
- ☆ *Desktop Services* - The vendor assumes responsibility for the deployment, maintenance, and connectivity between the personal computers and/or intelligent workstations in the client organization. The services may also include performing the help-desk function. The services are provided on a long-term contractual basis.

C

Delivery Modes and Submodes

Exhibit A-2 provides the overall structure of the information services industry as defined and used by INPUT. This section of *Definition of Terms* provides definitions for each of the delivery modes and their submodes or components.

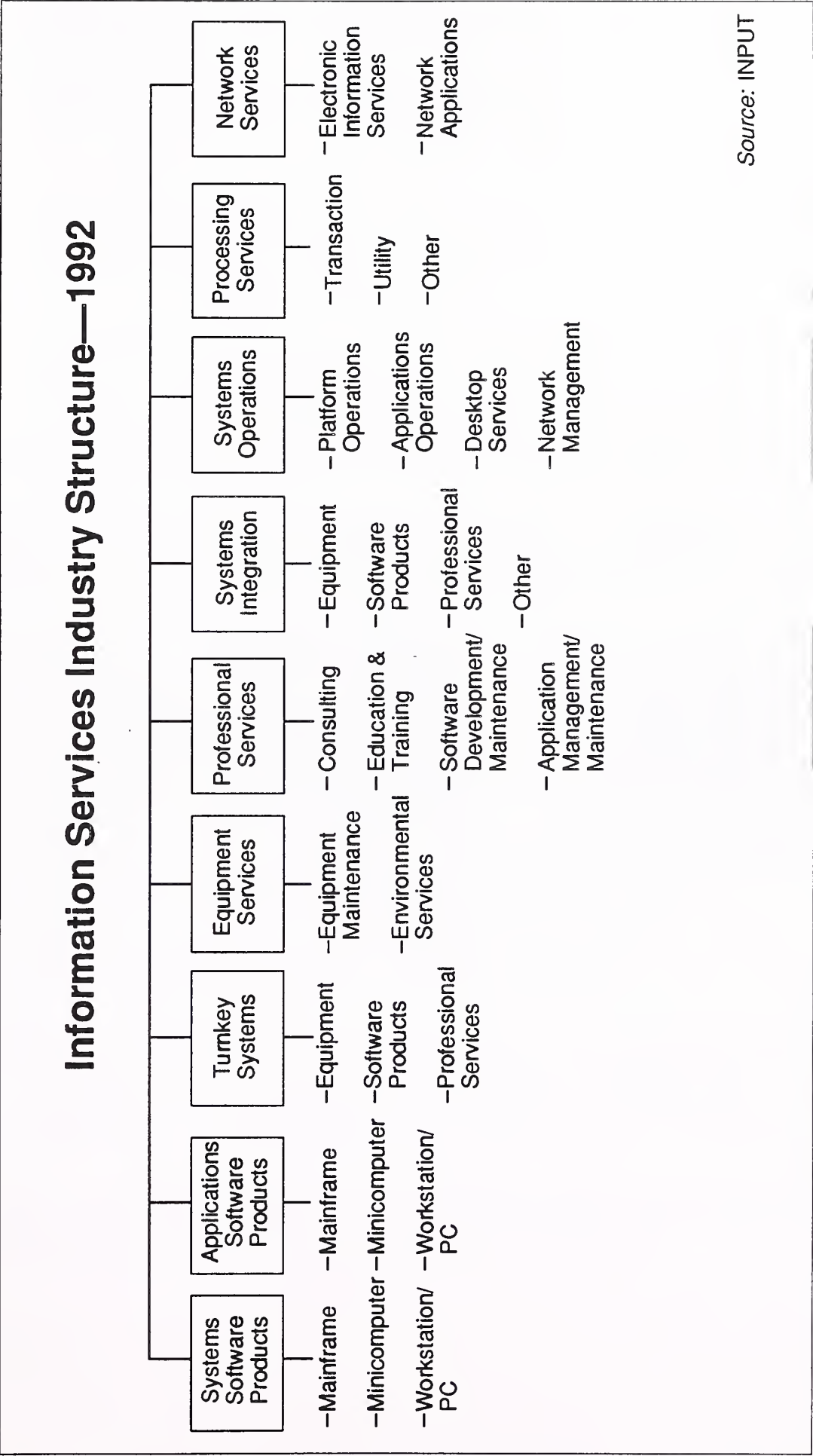
1. Software Products

INPUT divides the software products market into two delivery modes: systems software and applications software.

The two delivery modes have many similarities. Both involve purchases of software packages for in-house computer systems. Included are both lease and purchase expenditures, as well as expenditures for work performed by the vendor to implement or maintain the package at the user's sites. Vendor-provided training or support in operation and use of the package, if part of the software pricing, is also included here.

Expenditures for work performed by organizations other than the package vendor are counted in the professional services delivery mode. Fees for work related to education, consulting, and/or custom modification of software products are also counted as professional services, provided such fees are charged separately from the price of the software product itself.

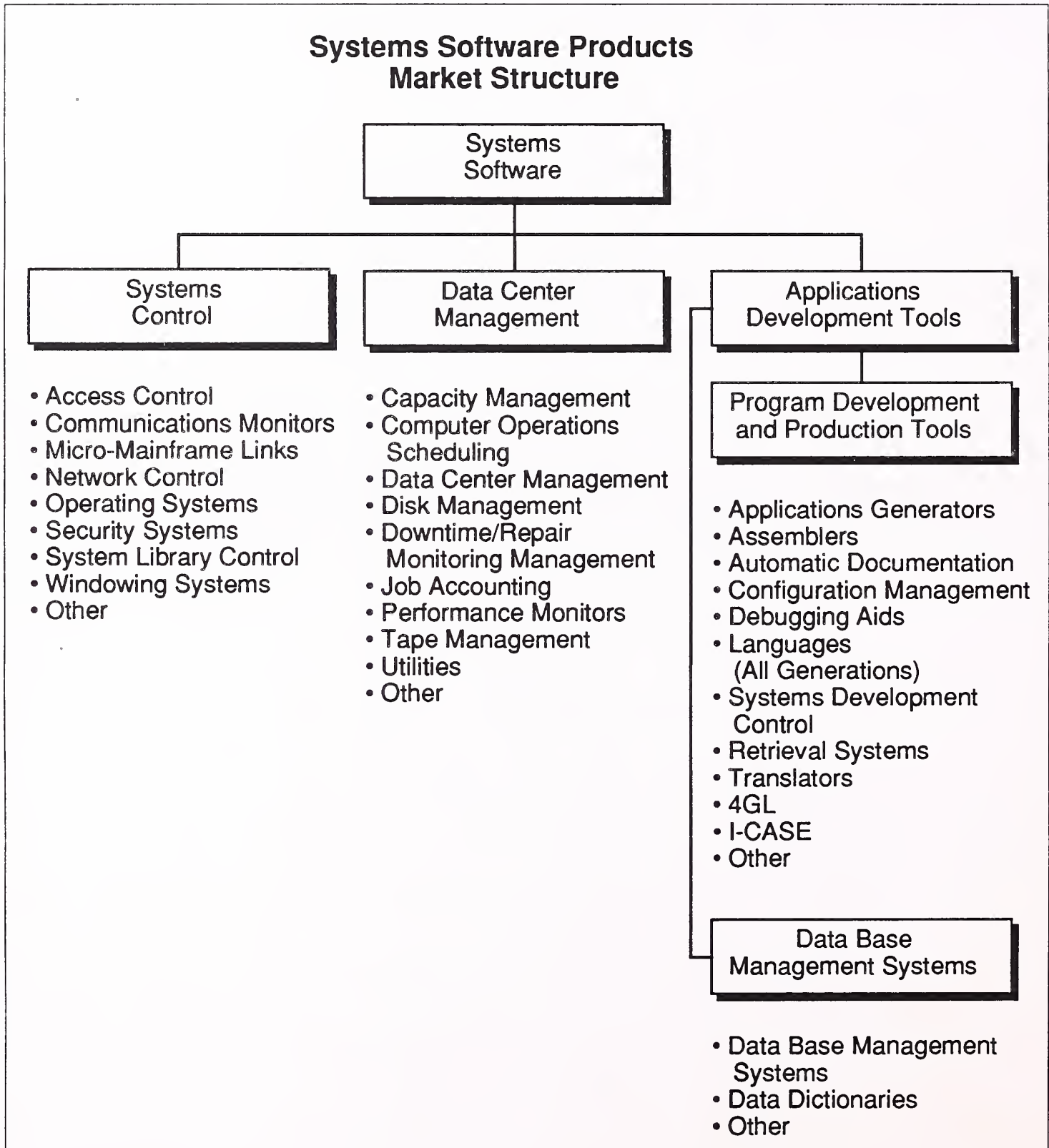
EXHIBIT A-2



a. Systems Software Products

Systems software products enable the computer/communications system to perform basic machine-oriented or user interface functions. INPUT divides systems software products into three submodes. See Exhibit A-3.

EXHIBIT A-3



- *Systems Control Products* - Software programs that manage computer system resources and control the execution of programs. These products include operating systems, emulators, network control, library control, windowing, access control, and spoolers.
- *Operations Management Tools* - Software programs used by operations personnel to manage the computer system and/or network resources and personnel more effectively. Included are performance measurement, job accounting, computer operation scheduling, disk management utilities, and capacity management.
- *Applications Development Tools* - Software programs used to prepare applications for execution by assisting in designing, programming, testing, and related functions. Included are traditional programming languages, 4GLs, data dictionaries, data base management systems, report writers, project control systems, CASE systems and other development productivity aids.

INPUT also forecasts the systems software products delivery mode by platform level: mainframe, minicomputer and workstation/PC.

b. Applications Software Products

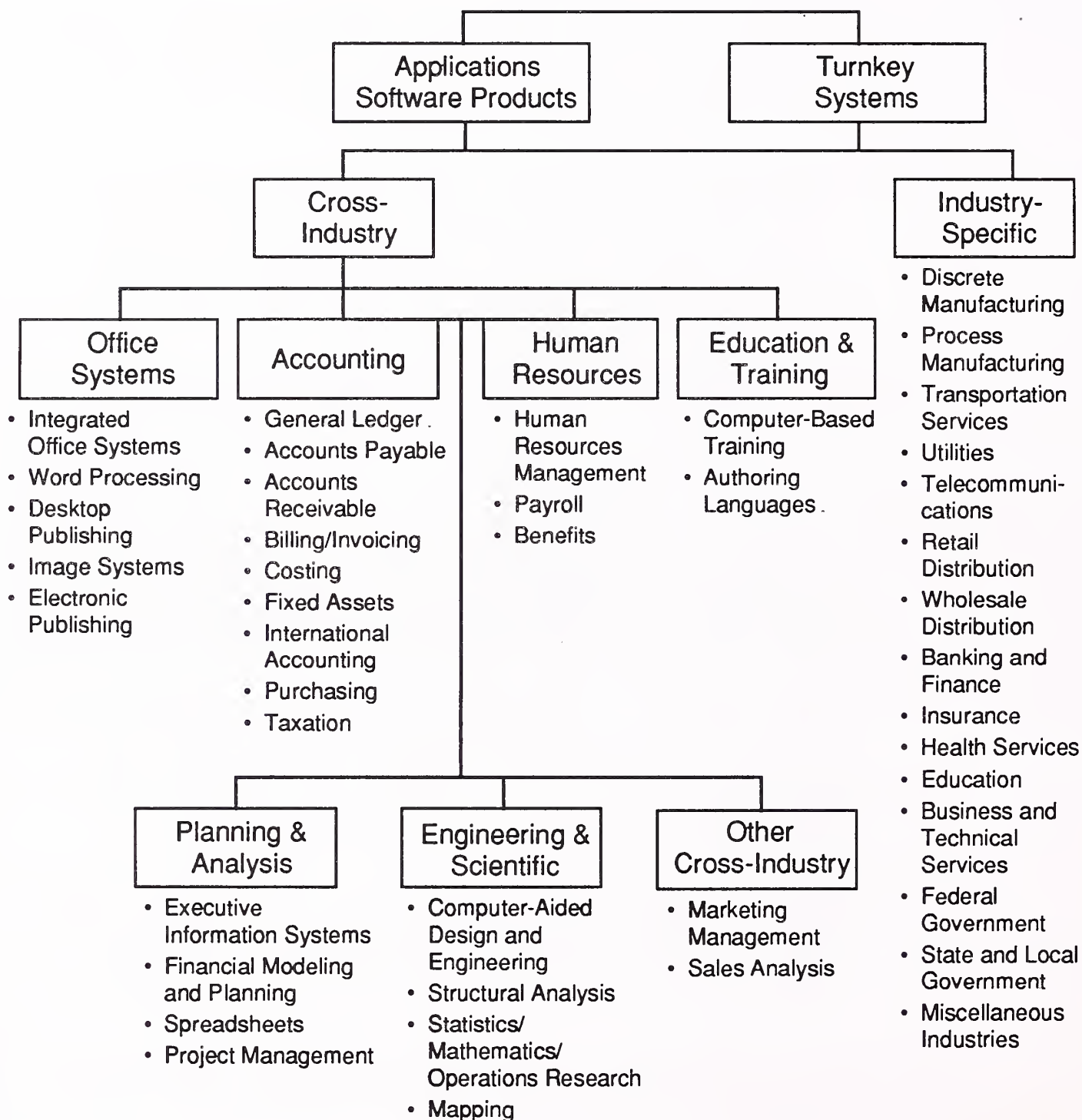
Applications software products enable a user or group of users to support an operational or administrative process within an organization. Examples include accounts payable, order entry, project management and office systems. INPUT categorizes applications software products into two groups of market sectors. (See Exhibit A-4.)

- *Industry Applications Software Products* - Software products that perform functions related to fulfilling business or organizational needs unique to a specific industry (vertical) market and sold to that market only. Examples include demand deposit accounting, MRPII, medical record keeping, automobile dealer parts inventory, etc.
- *Cross-Industry Applications Software Products* - Software products that perform a specific function that is applicable to a wide range of industry sectors. Examples include payroll and human resource systems, accounting systems, word processing and graphics systems, spreadsheets, etc.

INPUT also forecasts the applications software products delivery mode by platform level: mainframe, minicomputer and workstation/PC.

EXHIBIT A-4

Application Products and Turnkey Systems



2. Turnkey Systems

A turnkey system is an integration of equipment (CPU, peripherals, etc.), systems software, and packaged applications software into a single product developed to meet a specific set of user requirements. Value added by the turnkey system vendor is primarily in the software and professional services provided. INPUT categorizes turnkey systems into two groups of market sectors as it does for applications software products. (See Exhibit A-4.)

Most CAD/CAM systems and many small business systems are turnkey systems. Turnkey systems utilize standard computers and do not include specialized hardware such as word processors, cash registers, process control systems, or embedded computer systems for military applications.

Computer manufacturers (e.g., IBM or DEC) that combine software with their own general-purpose hardware are not classified by INPUT as turnkey vendors. Their software revenues are included in the appropriate software category.

Most turnkey systems are sold through channels known as value-added resellers.

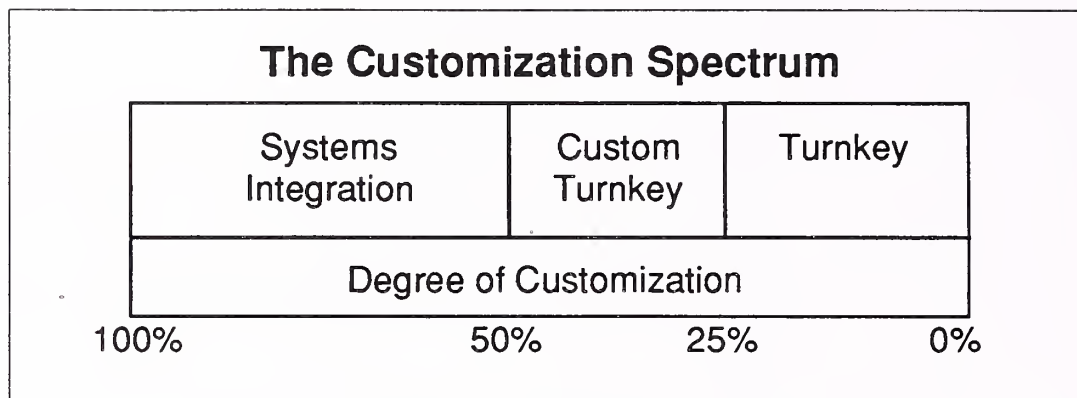
- *Value-Added Reseller (VAR)*: A VAR adds value to computer hardware and/or software and then resells it to an end user. The major value added is usually applications software for a vertical or cross-industry market, but also includes many of the other components of a turnkey systems solution, such as professional services, software support, and applications upgrades.

Turnkey systems have three components:

- Equipment - computer hardware supplied as part of the turnkey system
- Software products - prepackaged systems and applications software products
- Professional services - services to install or customize the system or train the user, provided as part of the turnkey system sale

Exhibit A-5 contrasts turnkey systems with systems integration. Turnkey systems are based on available software products that a vendor may modify to a modest degree.

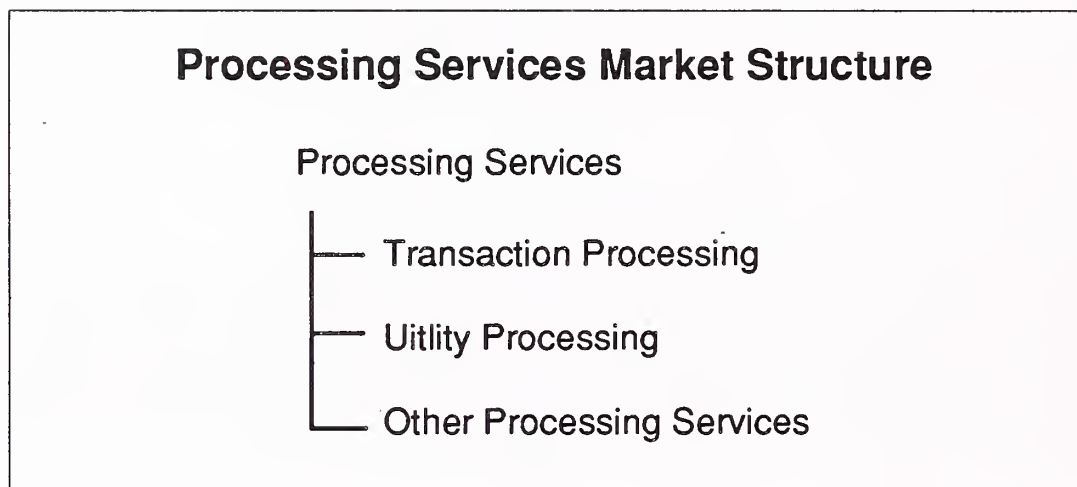
EXHIBIT A-5



3. Processing Services

This delivery mode includes three submodes: transaction processing, utility processing, and “other” processing services. See Exhibit A-6.

EXHIBIT A-6



- *Transaction Processing* - Client uses vendor-provided information systems—including hardware, software and/or data networks—at the vendor site or customer site to process specific applications and update client data bases. The application software is typically provided by the vendor.
- *Utility Processing* - Vendor provides basic software tools (language compilers, assemblers, DBMSs, graphics packages, mathematical models, scientific library routines, etc.), enabling clients to develop and/or operate their own programs or process data on the vendor's system.
- *Other Processing Services* - Vendor provides service—usually at the vendor site—such as scanning and other data entry services, laser printing, computer output microfilm (COM), CD preparation and other data output services, backup and disaster recovery, etc.

4. Systems Operations

Systems operations as a delivery mode was introduced in the 1990 Market Analysis and Systems Operations programs. Previously called Facilities Management, this delivery mode was created by taking the Systems Operations submode out of both Processing Services and Professional Services. For 1992 the submodes have been defined as follows.

Systems operations involves the operation and management of all or a significant part of the client's information systems functions under a long-term contract. These services can be provided in either of two distinct submodes where the difference is whether the support of applications, as well as data center operations, is included.

- *Platform systems operations* - The vendor manages and operates the computer systems, to perform the client's business functions, without taking responsibility for the client's application systems.
- *Applications systems operations* - The vendor manages and operates the computer systems to perform the client's business functions, and is also responsible for maintaining, or developing and maintaining, the client's application systems.
- ☆ *Network Management* - The vendor assumes responsibility for operating and managing the client's data communications systems. This may also include the voice communications of the client. A network management outsourcing contract may include only the management services or the full costs of the communications services and equipment plus the management services.
- ☆ *Desktop Services* - The vendor assumes responsibility for the deployment, maintenance, and connectivity among the personal computers and/or workstations in the client organization. The services may also include performing the help-desk function. Equipment as well as services can be part of a desktop services outsourcing contract.

Note: This type of client service can also be provided through traditional professional services where the contractual criteria of outsourcing are not present.

Systems operations vendors now provide a wide variety of services in support of existing information systems. The vendor can plan, control, provide, operate, maintain and manage any or all components of the client's information systems environment (equipment, networks, applications systems), either at the client's site or the vendor's site.

Note: In the federal government market, systems operation services are also defined by equipment ownership with the terms “COCO” (Contractor-Owned, Contractor-Operated), and “GOCO” (Government-Owned, Contractor-Operated).

5. Systems Integration (SI)

Systems integration is a vendor service that provides a complete solution to an information system, networking or automation development requirement through the custom selection and implementation of a variety of information system products and services. A systems integrator is responsible for the overall management of a systems integration contract and is the single point of contact and responsibility to the buyer for the delivery of the specified system function, on schedule and at the contracted price. (Refer to Exhibit A-7.)

The components of a systems integration project are the following:

- *Equipment* - information processing and communications equipment required to build the systems solution. This component may include custom as well as off-the-shelf equipment to meet the unique needs of the project. The systems integration equipment category excludes turnkey systems by definition.
- *Software products* - prepackaged applications and systems software products.
- *Professional services* - the value-added component that adapts the equipment and develops, assembles, or modifies the software and hardware to meet the system's requirements. It includes all of the professional services activities required to develop, implement, and if included in the contract, operate an information system, including consulting, program/project management, design and integration, software development, education and training, documentation, and systems operations and maintenance.
- *Other services* - most systems integration contracts include other services and product expenditures that are not classified elsewhere. This category includes miscellaneous items such as engineering services, automation equipment, computer supplies, business support services and supplies, and other items required for a smooth development effort.

EXHIBIT A-7

Products/Services in Systems Integration Projects

Equipment

- Information systems
- Communications

Software Products

- Systems software
- Applications software

Professional Services

- Consulting
 - Feasibility and trade-off studies
 - Selection of equipment, network and software
- Program/project management
- Design/integration
 - Systems design
 - Installation of equipment, network, and software
 - Demonstration and testing
- Software development
 - Modification of software packages
 - Modification of existing software
 - Custom development of software
- Education/training and documentation
- Systems operations/maintenance

Other Miscellaneous Products/Services

- Site preparation
- Data processing supplies
- Processing/network services
- Data/voice communication services

6. Professional Services

This category includes four submodes: consulting, education and training, software development, and applications management. Exhibit A-8 provides additional detail.

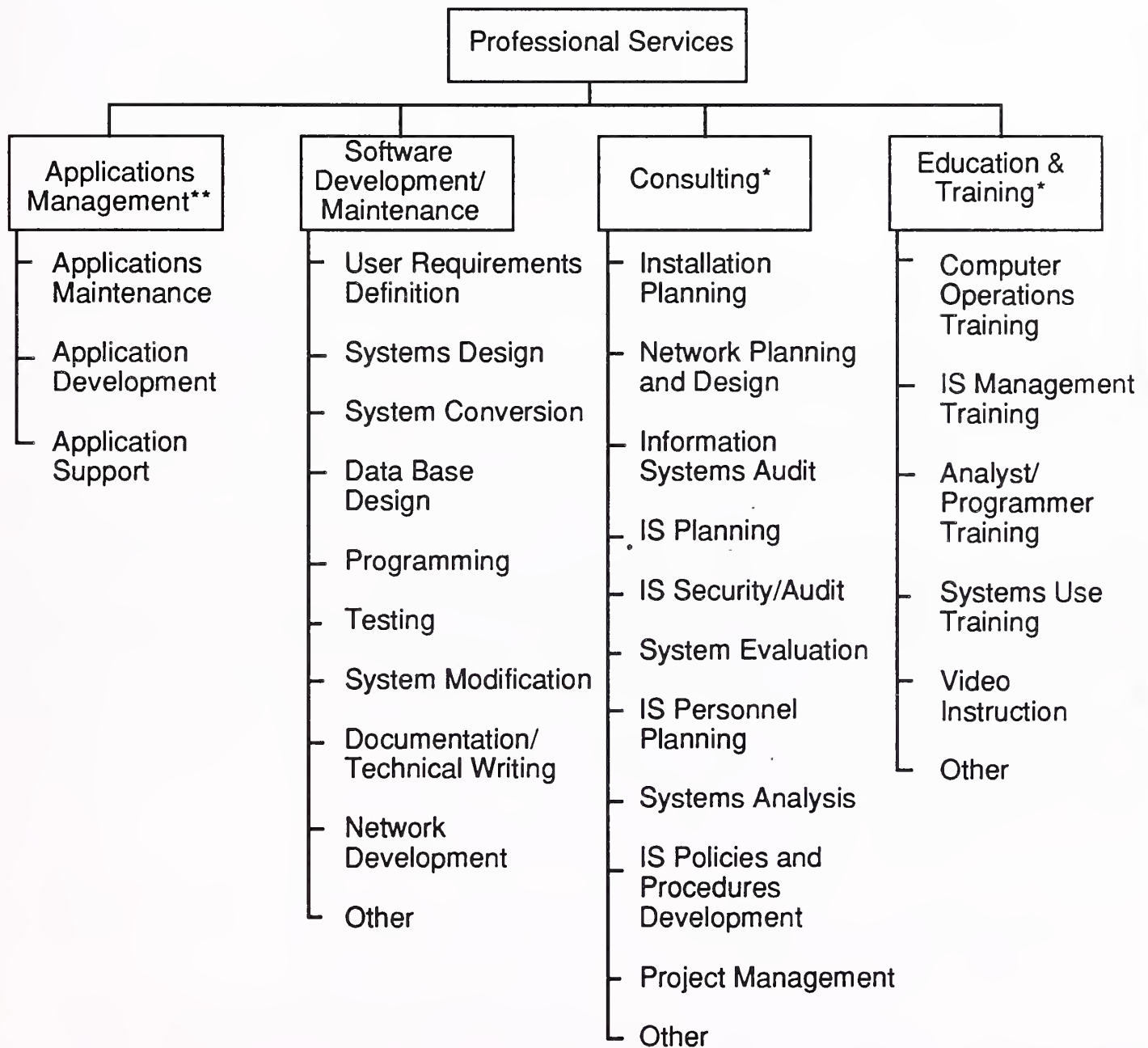
- *Consulting:* Services include management consulting (related to information systems), information systems re-engineering, information systems consulting, feasibility analysis and cost-effectiveness studies, and project management assistance. Services may be related to any aspect of the information system, including equipment, software, networks and systems operations.
- *Education and Training:* Services that provide training and education or the development of training materials related to information systems and services for the information systems professional and the user, including computer-aided instruction, computer-based education, and vendor instruction of user personnel in operations, design, programming, and documentation. Education and training provided by school systems are not included. General education and training products are included as a cross-industry market sector.
- *Software Development:* Services include user requirements definition, systems design, contract programming, documentation, and implementation of software performed on a custom basis. Conversion and maintenance services are also included.
- ☆ *Applications Management:* The vendor has full responsibility for maintaining and upgrading some or all of the application systems that a client uses to support business operations and may develop and implement new application systems for the client.

An applications management contract differs from traditional software development in the form of the client/vendor relationship. Under traditional software development services the relationship is project based. Under applications management it is time and function based.

These services may be provided in combination or separately from platform systems operations.

EXHIBIT A-8

Professional Services Market Structure



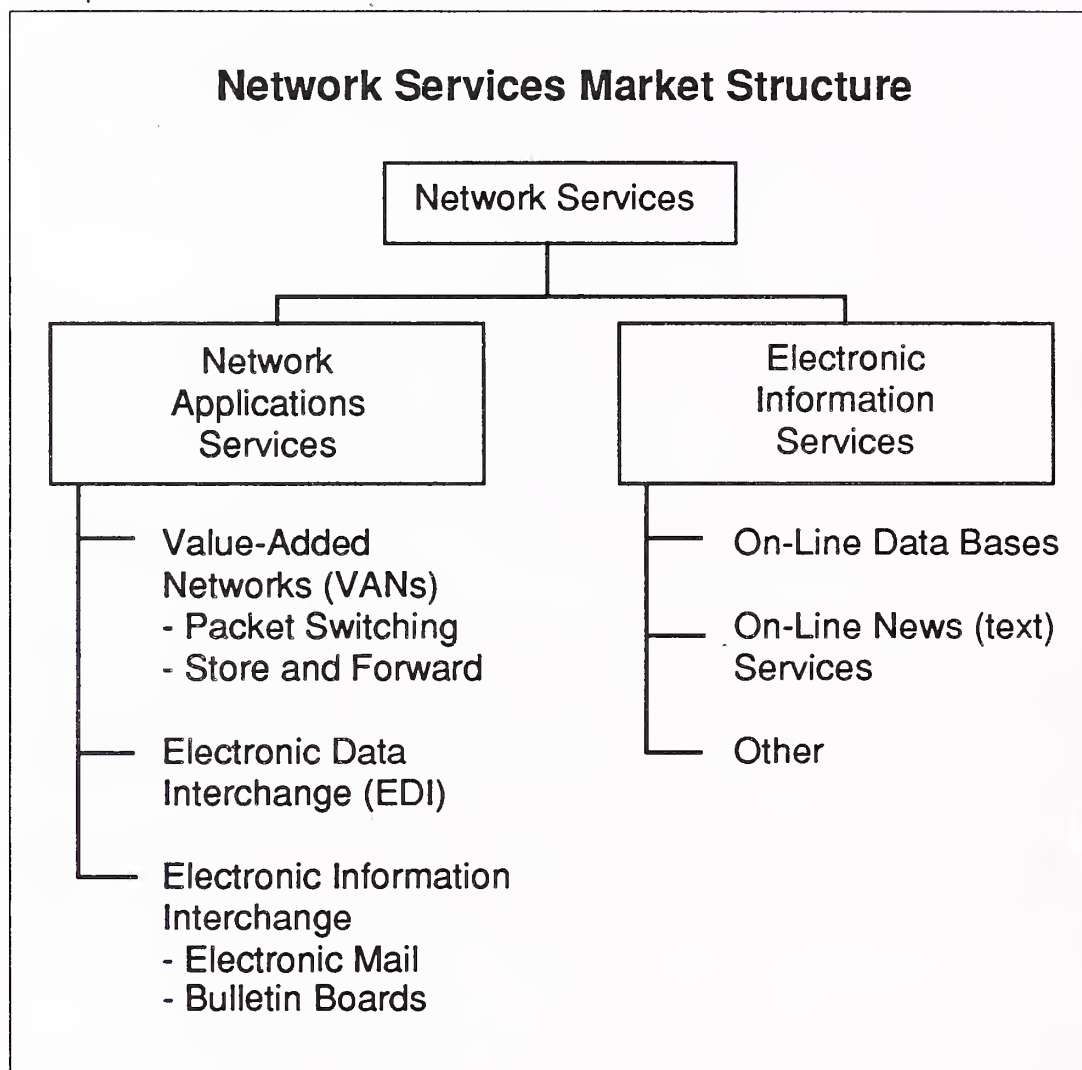
*Related to computer systems, topics, or issues

**Vendor assumes full responsibility on contracted longer term basis

7. Network Services

Network services are a variety of telecommunications-based functions and operations. Network service includes two submodes, as shown in Exhibit A-9.

EXHIBIT A-9



a. Electronic Information Services

Electronic information services are data bases that provide specific information via terminal- or computer-based inquiry, including items such as stock prices, legal precedents, economic indicators, periodical literature, medical diagnosis, airline schedules, automobile valuations, etc. The terminals used may be computers themselves, such as communications servers or personal computers.

Users inquire into and extract information from the data bases. They may load extracted data into their own computer systems; the vendor does not provide data processing or manipulation capability as part of the electronic information service and users cannot update the vendor's data bases. However, the vendor may offer other services (network applications or processing services) that do offer processing or manipulation capability.

The two kinds of electronic information services are:

- *On-line Data Bases* - Structured, primarily numerical data on economic and demographic trends, financial instruments, companies, products, materials, etc.
- Unstructured, primarily textual information on people, companies, events, etc. These are often news services.

While electronic information services have traditionally been delivered via networks, there is a growing trend toward the use of CD ROM optical disks to support or supplant on-line services, and these optical disk-based systems are included in the definition of this delivery mode.

b. Network Applications

Value-Added Network Services (VAN Services) - VAN services are enhanced transport services which involve adding such functions as automatic error detection and correction, protocol conversion, and store-and-forward message switching to the provision of basic network circuits.

While VAN services were originally provided only by specialized VAN carriers (Tymnet, Telenet, etc.), today these services are also offered by traditional common carriers (AT&T, Sprint, etc.). Meanwhile, the VAN carriers have also branched into the traditional common carriers' markets and are offering unenhanced basic network circuits as well.

Electronic Data Interchange (EDI) - Application-to-application electronic exchange of business data between trade partners or facilitators using a telecommunications network.

Electronic Information Interchange- The transmission of messages across an electronic network managed by a services vendor, including electronic mail, voice mail, voice messaging, and access to Telex, TWX, and other messaging services. This also includes bulletin board services.

8. Equipment Services

- ☆ The equipment services delivery mode includes two submodes. Both deal with the support and maintenance of computer equipment.
- ☆ *Equipment Maintenance* - Services provided to repair, diagnose problems and provide preventive maintenance both on-site and off-site for computer equipment. The costs of parts, media and other supplies are excluded. These services are typically provided on a contract basis.
- ☆ *Environmental Services* - Composed of equipment and data center related special services such as cabling, air conditioning and power supply, equipment relocation and similar services.

D

Computer Equipment

- ☆ These definitions have been included to provide the basis for market segmentation in the software products markets.
- ☆ *Computer Equipment* - Includes all computer and telecommunications equipment that can be separately acquired with or without installation by the vendor and not acquired as part of an integrated system. Unless otherwise noted in an INPUT forecast, computer equipment is only included where it is part of the purchase of services or software products (e.g., turnkey systems and systems integration).
- ☆ *Peripherals* - Includes all input, output, communications, and storage devices (other than main memory) that can be channel connected to a processor, and generally cannot be included in other categories such as terminals.
- ☆ *Input Devices* - Includes keyboards, numeric pads, card readers, light pens and track balls, tape readers, position and motion sensors, and analog-to-digital converters.
- ☆ *Output Devices* - Includes printers, CRTs, projection television screens, micrographics processors, digital graphics, and plotters
- ☆ *Communication Devices* - Includes modem, encryption equipment, special interfaces, and error control
- ☆ *Storage Devices* - Includes magnetic tape (reel, cartridge, and cassette), floppy and hard disks, solid state (integrated circuits), and bubble and optical memories

- ☆ *Computer Systems* - Includes all processors from personal computers to supercomputers. Computer systems may require type- or model-unique operating software to be functional, but this category excludes applications software and peripheral devices and processors or CPUs not provided as part of an integrated (turnkey) system.
- ☆ *Personal computers* - Smaller computers using 8-, 16-, or 32-bit computer technology. Generally designed to sit on a desktop and are portable for individual use. Price generally less than \$5,000.
- ☆ *Workstations* - High-performance, desktop, single-user computers often employing Reduced Instruction Set Computing (RISC). Workstations provide integrated, high-speed, local network-based services such as data base access, file storage and back-up, remote communications, and peripheral support. These products usually cost from \$5,000 to \$15,000.
- ☆ *Minicomputer or midsize computers* - Minicomputers are generally priced from \$15,000 to \$350,000. Many of the emerging client/server computers are in this category.
- ☆ *Mainframe or large computers* - Traditional mainframe and supercomputers costing more than \$350,000.

E

Sector Definitions

1. Industry Sector Definitions

INPUT structures the information services market into industry sectors such as process manufacturing, insurance, transportation, etc. The definitions of these sectors are based on the 1987 revision of the Standard Industrial Classification (SIC) code system. The specific industries (and their SIC codes) included under these industry sectors are detailed in Exhibit A-10.

INPUT includes all delivery modes except systems software products and equipment services in industry market sectors. See Exhibit A-9 and section E-3 (Delivery Mode Reporting by Sector).

Note: SIC code 88 is Personal Households. INPUT does not currently analyze or forecast information services in this market sector.

EXHIBIT A-10

Industry Sector Definitions

Industry Sector	SIC Code	Description
Discrete Manufacturing	23xx	Apparel and other finished products
	25xx	Furniture and fixtures
	27xx	Printing, publishing and allied industries
	31xx	Leather and leather products
	34xx	Fabricated metal products, except machinery and transportation equipment
	35xx	Industrial and commercial machinery and computer equipment
	36xx	Electronic and other electrical equipment and components, except computer equipment
	37xx	Transportation equipment
	38xx	Instruments; photo/med/optical goods; watches/clocks
	39xx	Miscellaneous manufacturing industry
Process Manufacturing	10xx	Metal mining
	12xx	Coal mining
	13xx	Oil and gas extraction
	14xx	Mining/quarrying nonmetallic minerals
	20xx	Food and kindred products
	21xx	Tobacco products
	22xx	Textile mill products
	24xx	Lumber and wood products, except furniture
	26xx	Paper and allied products
	28xx	Chemicals and allied products
	29xx	Petroleum refining and related industries
	30xx	Rubber and miscellaneous plastic products
	32xx	Stone, clay, glass and concrete products
	33xx	Primary metal industries
Transportation Services	40xx	Railroad transport
	41xx	Public transit/transport
	42xx	Motor freight transport/warehousing
	43xx	U.S. Postal Service
	44xx	Water transportation
	45xx	Air transportation (including airline reservation services in 4512)
	46xx	Pipelines, except natural gas
	47xx	Transportation services (including 472x, arrangement of passenger transportation)

EXHIBIT A-10 (CONT.)

Industry Sector Definitions

Industry Sector	SIC Code	Description
Telecommunications	48xx	Communications
Utilities	49xx	Electric, gas and sanitary services
Retail Distribution	52xx 53xx 54xx 55xx 56xx 57xx 58xx 59xx	Building materials General merchandise stores Food stores Automotive dealers, gas stations Apparel and accessory stores Home furniture, furnishings and accessory stores Eating and drinking places Miscellaneous retail
Wholesale Distribution	50xx 51xx	Wholesale trade - durable goods Wholesale trade - nondurable goods
Banking and Finance	60xx 61xx 62xx 67xx	Depository institutions Nondepository institutions Security and commodity brokers, dealers, exchanges and services Holding and other investment offices
Insurance	63xx 64xx	Insurance carriers Insurance agents, brokers and services
Health Services	80xx	Health services
Education	82xx	Educational services

EXHIBIT A-10 (CONT.)

Industry Sector Definitions

Industry Sector	SIC Code	Description
Business Services	65xx	Real estate
	70xx	Hotels, rooming houses, camps, and other lodging places
	72xx	Personal services
	73xx	Business services (except hotel reservation services in 7389)
	7389x	Hotel reservation services
	75xx	Automotive repair, services and parking
	76xx	Miscellaneous repair services
	78xx	Motion pictures
	79xx	Amusement and recreation services
	81xx	Legal services
	83xx	Social services
	84xx	Museums, art galleries, and botanical/zoological gardens
	86xx	Membership organizations
	87xx	Engineering, accounting, research, management, and related services
	89xx	Miscellaneous services
Federal Government	9xxx	
State and Local Government	9xxx	
Miscellaneous Industries	01xx	Agricultural production - crops
	02xx	Agricultural production - livestock/animals
	07xx	Agricultural services
	08xx	Forestry
	09xx	Fishing, hunting and trapping
	15xx	Building construction - general contractors, operative builders
	16xx	Heavy construction - contractors
	17xx	Construction - special trade contractors

2. Cross-Industry Sector Definitions

INPUT has identified seven cross-industry market sectors. These sectors or markets involve multi-industry applications such as human resource systems, accounting systems, etc.

- In order to be included in an industry sector, the service or product delivered must be specific to that sector only. If a service or product is used in more than one industry sector, it is counted as cross-industry.
- INPUT only includes the turnkey systems, applications software products, and transaction processing services in the cross-industry sectors.

The seven cross-industry markets are:

Accounting - consists of applications software products and information services that serve such functions as:

- General ledger
 - Financial management
 - Accounts payable
 - Accounts receivable
 - Billing/invoicing
 - Fixed assets
 - International accounting
 - Purchasing
 - Taxation
 - Financial consolidation
- Excluded are accounting products and services directed to a specific industry, such as tax processing services for CPAs and accountants within the business services industry sector.

Human Resources - consists of application solutions purchased by multiple industry sectors to serve the functions of human resources management and payroll. Examples of specific applications within these two major functions are:

- Employee relations
- Benefits administration
- Government compliance
- Manpower planning
- Compensation administration
- Applicant tracking
- Position control
- Payroll processing

Education and Training - consists of education and training for information systems professionals and users of information systems delivered as a software product, turnkey system or through processing services. The market for computer-based training tools for the training of any employee on any subject is also included.

Office Systems consists of the following:

- Integrated office systems (IOS)
 - Word processing
 - Desktop publishing
 - Electronic publishing
 - Image systems
- IOSs—such as IBM's OfficeVision, HP's NewWave Office and DEC's All-In-1—typically include the following core functions, all of which are accessed from the same desktop: electronic mail, decision support systems, time management and filing systems.
 - Office systems graphics include presentation graphics (which represent the bulk of office systems graphics), paint and line art, page description languages, and electronic form programs.
 - The fundamental difference between electronic publishing and desktop publishing (within the office systems sector) is that electronic publishing encompasses a method of document management and control from a single point—regardless of how many authors/locations work on a document—whereas desktop publishing is a personal productivity tool and is generally a lower end product residing on a personal computer.
 - Electronic or computer publishing systems that are sold strictly and specifically to commercial publishers, printers, and typesetters are excluded from cross-industry consideration and are included in the discrete manufacturing industry.

Engineering and Scientific encompasses the following applications:

- Computer-aided design and engineering (CAD and CAE)
 - Structural analysis
 - Statistics/mathematics/operations research
 - Mapping/GIS
- Computer-aided manufacturing (CAM) or CAD that is integrated with CAM is excluded from the cross-industry sector as it is specific to the manufacturing industries. CAD or CAE that is dedicated to integrated circuit design is also excluded because it is specific to the semiconductor industry.

Planning and Analysis consists of software products and information services in four application areas:

- Executive Information Systems (EIS)
- Financial modeling or planning systems
- Spreadsheets
- Project management

Other encompasses marketing/sales and electronic publishing application solutions.

- Sales and marketing includes:
 - Sales analysis
 - Marketing management
 - Demographic market planning models

3. Delivery Mode Reporting by Sector

This section describes how the delivery mode forecasts relate to the market sector forecasts. Exhibit A-11 summarizes the relationships.

- *Processing services* - The transaction processing services submode is forecasted for each industry and cross-industry market sector. The utility and other processing services submodes are forecasted in total market in the general market sector.
- *Turnkey systems* - Turnkey systems is forecasted for the 15 industry and 7 cross-industry sectors. Each component of turnkey systems is forecasted in each sector.
- *Applications software products* - The applications software products delivery mode is forecasted for the 15 industry and 7 cross-industry sectors. In addition, each forecast is broken down by platform level: mainframe, minicomputer and workstation/PC.
- *Systems operations* - Each of the systems operations submodes is forecasted for each of the 15 industry sectors.
- *Systems integration* - Systems integration and each of the components of systems integration are forecasted for each of the 15 industry sectors.
- *Professional services* - Professional services and each of the submodes is forecasted for each of the 15 industry sectors.

EXHIBIT A-11

Delivery Mode versus Market Sector Forecast Content

Delivery Mode	Submode	Market Sectors		
		Industry Sectors	Cross-Industry Sectors	General
Processing Services	Transaction	X	X	X
	Utility			X
	Other			X
Turnkey Systems		X	X	
Applications Software Products		X	X	
Systems Operations	Platform	X		
	Applications	X		
Systems Integration		X		
Professional Services		X		
Network Services	Network Applications	X		
	Electronic Information Services	X		X
Systems Software Products				X
Equipment Services				X

- *Network services* - The network applications submode of network services forecasted for each of the 15 industry sectors.

Industry and cross-industry electronic information services are forecast in relevant market sectors. The remainder of electronic information services is forecasted in total for the general market sector.

- *Systems software products* - Systems software products and its submodes are forecasted in total for the general market sector. Each submode forecast is broken down by platform level: mainframe, mini-computer and workstation/PC.

- *Equipment services* - Equipment services and its submodes are forecasted in total in the general market sectors.

F

Vendor Revenue and User Expenditure Conversion

The size of the information services market may be viewed from two perspectives: vendor (producer) revenues and user expenditures. INPUT defines and forecasts the information services market in terms of user expenditures. User expenditures reflect the markup in producer sales when a product such as software is delivered through indirect distribution channels (such as original equipment manufacturers (OEMs), retailers and distributors). The focus on user expenditure also eliminates the double counting of revenues that would occur if sales were tabulated for both producer (e.g., Lotus) and distributor (e.g., ComputerLand).

For most delivery modes, vendor revenues and user expenditures are fairly close. However, there are some areas of significant difference. Many microcomputer software products, for example, are marketed through distribution channels. To capture the value added through these distribution channels, adjustment factors are used to convert estimated information services vendor revenues to user expenditures.

For some delivery modes, including software products, systems integration and turnkey systems, there is a significant volume of intra-industry sales. For example, systems integrators purchase software and subcontract the services of other professional services vendors. Turnkey vendors incorporate purchased software into the systems they sell to users.

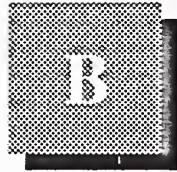
To account for such intra-industry transactions, INPUT uses conversion ratios to derive the estimate of end-user expenditures.

Exhibit A-12 summarizes the net effect of the various ratios used by INPUT to convert vendor revenues to user expenditure (market size) figures for each delivery mode.

EXHIBIT A-12

**Vendor Revenue to
User Expenditure Conversion**

Delivery Mode	Vendor Revenue Multiplier
Applications Software Products	1.18
Systems Software Products	1.10
Systems Operations	0.95
Systems Integration	0.95
Professional Services	0.99
Network Services	0.99
Processing Services	0.99
Turnkey Systems	0.95
Equipment Services	0.99



Questionnaires

The following definitions were used in the preparation of this study:

Outsourcing - Contracting for all or a major portion of an information system function, or process to a vendor on a long-term basis.

Outsourcing components include:

Platform Operations - The vendor is responsible for managing the computer systems and their associated networks.

Network Management - Contracting to a vendor for the operations and management of the computer-related telecommunications network, transmitting data, voice, image, text, local-area and wide-area networks. Voice-only network operations are not part of information systems outsourcing.

Desktop Services - Contracting out to a vendor for the deployment, maintenance, support and connectivity of the firm's PC/workstation inventory. The service may also include performing the help desk function.

Applications Management - The vendor is responsible for the development and maintenance of all applications systems a client uses to support a business operation.

Applications Maintenance - Contracting out only for the maintenance of the existing applications software associated with a business operation.

Outsourcing Desktop Services User Questionnaire

Company Confidential

- 1a. Has your company considered hiring a vendor (outsourcing) to provide some form of desktop/user support services? **(Check one)**

Yes

_____ **(Go to Q2a)**

No

Don't know

_____ **(Please forward questionnaire to someone knowledgeable in your company)**

- 1b. In your opinion, why hasn't your company considered outsourcing desktop services?

END QUESTIONNAIRE

- 2a. Does your company currently, or plan to, contract with a vendor to provide at least one component of desktop services to your company? **(Check one)**

Yes

_____ **(Go to Q3a)**

No

Don't know

_____ **(Please forward questionnaire to someone knowledgeable in your company)**

- 2b. Why was a decision made not to outsource desktop service functions?

END QUESTIONNAIRE

- 3a. Are desktop services provided or planned to be provided through a dedicated contract for that purpose? **(Check one)**

Yes

No

Don't know

3b. Does your company outsource other information systems functions? **(Check one)**

Yes _____
 No _____ **(Go to Q5)**
 Don't know _____

3c. Which of the following other outsourcing services does your company contract for or plan to contract for through 1997? **(Check all that apply)**

Platform/processing operations _____
 Applications management _____
 Applications maintenance _____
 Network operations _____

4. If your company has a contract with one vendor for any of the components of outsourcing listed in Q3c, and this contract includes some desktop services functions, can you estimate what percent of your contract's costs are for desktop services?

Enter percent _____

5. Which of the following desktop functions does your company currently outsource to a vendor, or have plans to through 1997? **(Check all that apply in each column)**

	Now	Future
Equipment & software purchasing consultation	_____	_____
Equipment supply	_____	_____
Software products supply	_____	_____
Equipment maintenance	_____	_____
Installation	_____	_____
LAN management	_____	_____
Help desk/user services including systems and applications software support	_____	_____
User training	_____	_____
Logistics management	_____	_____
Network interface management	_____	_____

6. Why has your company decided to use the services of an outsourcing vendor to provide desktop service functions versus using internal personnel?

7. What organization within your company is responsible for making the decision to outsource desktop services? Is this different than for other information systems functions?

END QUESTIONNAIRE IF NO CURRENT CONTRACT IS IN PLACE

8. If equipment maintenance is not currently outsourced to a vendor, how is it handled by your company? Who/what organization provides this service?

-
-
9. If your company plans to outsource additional desktop functions prior to your current contract's expiration, will your company... **(Check one)**

Renegotiate the existing contract _____

Seek another vendor's services/run procurement _____

Don't know _____

- 10a. What is your current contract's length?

Specify years: _____

- 10b. If your company decides to continue outsourcing desktop services after the current contract expires, would the same contract length be desirable, or do you think your company would prefer to change it? Please explain.

-
-
11. How does the vendor provide desktop services to your company? **(Check one)**

On-site with vendor personnel _____

Off-site with vendor personnel _____

Combination _____

Comments: _____

12. How did your company approach potential vendors for bids on the current contract? **(Check one)**

Through a...

Formal solicitation document? _____

Informal request to vendors? _____

Sole-source request to one vendor? _____

Add services to an existing contract _____

13. How many potential bids were evaluated?

Enter number: _____

14. What were the most important evaluation criteria?

15. In your opinion, which of the following criteria are important when evaluating desktop services vendors? Please rate the criteria on a scale of 1-5, with 5=most important, and 1=not important at all.

Circle One

Breadth of technical ability	1 2 3 4 5
Experience in desktop outsourcing	1 2 3 4 5
Security provisions	1 2 3 4 5
User support onsite with vendor personnel	1 2 3 4 5
User support offsite with vendor personnel	1 2 3 4 5
Use of third parties	1 2 3 4 5
Level of service	1 2 3 4 5
Prior references/reputation	1 2 3 4 5
Vendor size/revenue	1 2 3 4 5
Number of customers	1 2 3 4 5
Price for services/cost	1 2 3 4 5
Vendor financial condition	1 2 3 4 5
Vendor take over of staff/assets	1 2 3 4 5
Vendor independence	1 2 3 4 5
A single supplier	1 2 3 4 5

16. In your opinion, what should vendors offer to potential outsourcing customers to win contracts?

17. What makes for a successful desktop services outsourcing relationship between a vendor and a customer?

18. Name three successful desktop services vendors.

Comments:

Outsourcing Desktop Services Vendor Questionnaire

Company Confidential

- 1a. Does your company offer any desktop services (i.e., end-user support services, LAN management)? **(Check one)**

Yes _____ **(Go to Q2)**
 No _____
 Don't know _____ **(Ask to be directed to someone who knows, and start questionnaire over again)**

- 1b. Does your company expect to offer desktop services over the next five years?

Yes _____
 No _____ **(End)**
 Don't know _____ **(Ask to be directed to someone who knows, and start questionnaire over again)**

2. Which of the following component services does your company now offer and plan to offer in the next five years as desktop services? **(Check all that apply in each column)**

	Now	Future
Equipment & software purchasing consultation	_____	_____
Equipment supply	_____	_____
Software products supply	_____	_____
Equipment maintenance	_____	_____
Installation	_____	_____
LAN management	_____	_____
Help desk/user services including systems and applications software support	_____	_____
User training	_____	_____
Logistics management	_____	_____
Network interface management	_____	_____

3. How would you classify what type of vendor your company is? Is your company a... ? **(Check one)**

Professional services firm _____
 Systems integrator _____
 Hardware vendor _____
 PC distributor _____
 3rd-party maintenance supplier _____
 Other (Specify): _____

4. In addition to desktop services, which of the following other outsourcing services does your company currently offer or plan to offer to customers? (Check all that apply)

Platform/processing operations	_____
Applications management	_____
Applications maintenance	_____
Network operations	_____

(IF RESPONDENT IS NOT CURRENTLY OFFERING DESKTOP SERVICES, END QUESTIONNAIRE HERE)

- 5a. Overall, what percent of your outsourcing contracts include providing at least one desktop services component?

Enter percent _____%

6. Do you see your company's revenues for desktop services increasing, decreasing, or remaining the same through 1997?

**Check
One**

Why?

Increasing	_____	_____
Decreasing	_____	_____
Remaining the same	_____	_____

7. What percent of your company's overall revenue is derived from providing desktop services to client companies?

Enter percent _____%

8. Please rate the profitability of each component of desktop services your company now provides on a 1-5 scale, where 5=extremely profitable and 1=not profitable at all.

Circle One Number

Equipment & software purchasing consultancy	1 2 3 4 5
Equipment supply	1 2 3 4 5
Software products supply	1 2 3 4 5
Equipment maintenance	1 2 3 4 5
Installation	1 2 3 4 5
LAN management	1 2 3 4 5
Help desk/user services including systems and applications software support	1 2 3 4 5
User training	1 2 3 4 5
Logistics management	1 2 3 4 5
Network interface management	1 2 3 4 5

9. In your opinion, what are your company's strengths and weaknesses as a desktop services outsourcing vendor?

Strengths:

Weaknesses:

- 10a. How would you define your company's principal markets for providing desktop services?

- 10b. What vertical industries is your company in? Also rate how lucrative each is to your company for desktop services contracts using a 1-5 scale; where 5=extremely lucrative, and 1=not lucrative at all.

Specify Vertical Industry

Circle One

<hr/>	1 2 3 4 5
<hr/>	1 2 3 4 5
<hr/>	1 2 3 4 5
<hr/>	1 2 3 4 5

- 10c. Now rate which size companies hold the most opportunities for desktop services contracts for your company. Use the 1-5 scale again, where 5=many opportunities, and 1=no opportunities at all.

Circle One

Over \$200 million	1 2 3 4 5
\$50-200 million	1 2 3 4 5
Under \$50 million	1 2 3 4 5

11. How is your company organized to sell desktop services? (Check one)

Dedicated sales force	<hr/>
Shared sales force	<hr/>
Other (Specify)	<hr/>

12. If your company offers help desk services, please indicate the percentage of contracts that provide services to the customer on site, or from a remote location?

	Indicate Percent
On site	_____
Remote location	_____
Combination	_____

13. If your company functions as the prime contractor for desktop services, which of the following functions are usually, sometimes, or never handled by a subcontractor? **(Check only one column for each component that is subcontracted)**

	Usually	Sometimes	Never
Equipment & software purchasing consultation	_____	_____	_____
Equipment supply	_____	_____	_____
Software products supply	_____	_____	_____
Equipment maintenance	_____	_____	_____
Installation	_____	_____	_____
LAN management	_____	_____	_____
Help desk/user services including systems and applications software support	_____	_____	_____
User training	_____	_____	_____
Logistics management	_____	_____	_____
Network interface management	_____	_____	_____

14. If your company functions as subcontractor on desktop services contracts, which functions are usually, sometimes, or never provided to a prime? **(Check only one column for each component that is provided to a prime)**

	Usually	Sometimes	Never
Equipment & software purchasing consultation	_____	_____	_____
Equipment supply	_____	_____	_____
Software products supply	_____	_____	_____
Equipment maintenance	_____	_____	_____
Installation	_____	_____	_____
LAN management	_____	_____	_____
Help desk/user services including systems and applications software support	_____	_____	_____
User training	_____	_____	_____
Logistics management	_____	_____	_____
Network interface management	_____	_____	_____

15. How important do you think the following trends or drivers are in spurring the market for desktop services? Use a 1-5 scale to rate each trend; where 5=extremely important, and 1=not important at all.

Circle One Number

Downsizing	1 2 3 4 5
Increase in networked applications	1 2 3 4 5
Compliance to standards	1 2 3 4 5
Downsizing complexity	1 2 3 4 5
Other (Specify)_____	1 2 3 4 5

Comments:

(Blank)

